

FINAL REPORT: PHASE 2 EVALUATION OF THE EFFICIENCY VERMONT BUSINESS PROGRAMS

Appendix A

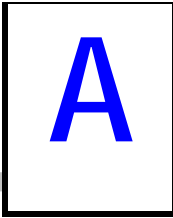
Prepared for

Vermont Department of Public Service
Montpelier, Vermont

Prepared by

RLW Analytics
KEMA, Inc.

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APPENDIX

ARCHITECT Interview Guide

FINAL 3.12.05

Interview Guide Objectives:
- Assess baseline equipment, systems, and practices
- Assess role of suppliers and contractors in equipment selection and decision making
- Assess market actor knowledge of benefits of efficient equipment and installation
- Assess recognition and experience with EVT and BED

Initial Contact - Recruiting Script

[IF NO CONTACT LISTED > Introduction for gatekeeper:]

This is [Name] of RLW Analytics, and I'm calling on behalf of the Vermont Department of Public Service (DPS). You may have seen a letter or e-mail we previously sent to you about an evaluation study the DPS is conducting to look closely at what is happening in the equipment and new construction marketplace. The results of the evaluation will help them understand how they can best support Vermont businesses and residents through energy efficiency programs.

In particular, we're looking to schedule brief telephone interviews to gather some information and opinions from architects who perform work for Vermont projects. The interview takes approximately 30 minutes and I can do it now, or it can be scheduled during the day or evening at a time convenient for you. Also, I can e-mail or send you the interview questions ahead of time if you like. The information collected through the interviews will be used to help improve efficiency programs to best support the adoption of high efficiency equipment. This is not a sales or telemarketing call - we're not asking you or your firm to do anything or buy something.

Would there be an opportunity to talk with you now or schedule a time to talk with you? This interview would be about 30 minutes.

[If NO, thank them and terminate call]

If YES, [IF CONTACT NAME IS NOT LISTED] Who would be the best person in your company to interview?

[IF CONTACT IS REACHED – REPEAT INTRODUCTION]

First, just to confirm - you are an architect. ____Yes ____No

And, that you completed work on at least one commercial or industrial project in Vermont in 2004.
____Yes ____No

TERMINATE AND THANK IF EITHER IS "NO".

Second, I need to find out what kinds of services your firm provides:

SCREEN1: What percentage of your firm's design work is for commercial or industrial spaces? ____%

SCREEN2: What percentage of your firm's design work is for multiunit apartment buildings or residences? ____%

SCREEN3: What percentage of your firm's design work is for single family homes? ____%

[IF SCREEN 3 IS 75% OR HIGHER, THANK AND TERMINATE> Please explain that the focus of the interview is toward designers who work to some degree on C/I designs.]

When would be a convenient time for you to be interviewed? (As I said earlier, it can be anytime during the day or evening.)

SCHED_OPTION1: Yes, Schedule: Date_____ and range of time: From _____ To_____
Date: _____ Time:_____

SCHED_OPTION2: Yes, Now→ go to Interview Guide

SCHED_OPTION3: Not sure if legitimate, wants to confirm → please contact DPS project manager, Randall Lloyd at 802-828-4020 or via e-mail at randall.lloyd@state.vt.us.

SCHED_OPTION4: Needs other input for joint decision (Schedule call-back)

SCHED_OPTION5: Call back date, time and number:

Great. First, I would like to verify that I have the following information correct:

ENTER CORRECT CONTACT: _____

ENTER CORRECT COMPANY NAME: _____

ENTER CORRECT PHONE NUMBER: _____

BEST PHONE NUMBER FOR INTERVIEW (If different from above.)_____

Interviewer Introduction

This interview is part of an evaluation sponsored by the Vermont Department of Public Service. The DPS routinely looks to learn more about what is happening in the equipment and new construction marketplace, to help them understand how they can best support Vermont businesses and residents through energy efficiency services and programs.

Your individual answers will be considered fully confidential, and will not be shared with the DPS, the State of Vermont, or any other organizations. Our analysis ties all the individual answers together to produce our report, so no single answer or respondent is identified.

If you would like to see a copy of the final report, we can let you know when it becomes available.

REPORT 1. ___No 2. ___Yes > E-Mail address if available:_____

1. [Confirmation] I want to confirm we have your firm classified correctly. Approximately how many, or, what percentage of your 2004 projects in Vermont fell into the following four categories: Commercial space, Government or Education Space, Industrial Space, Single Family Residential, and other types of space. For each of these categories I would also like to ask what specific sectors you worked in and what type of projects you did.

TYPES	(1) 1 = NO, 2 = YES	(2) IF YES> % or # of 2004 Vermont Projects	(3) Sectors Addressed
a. Commercial (offices, retail spaces, and similar?)			
b. Government, Health Care, or Education?			
c. Industrial or warehouse facilities?			
d. Multifamily or multiunit apartment buildings?			
e. Single family residential? (SEE BELOW)			
f. Other types of spaces (SPECIFY)			

IF 5.e. IS 75% OR MORE, PLEASE THANK AND TERMINATE. PLEASE EXPLAIN THAT THIS INTERVIEW IS GEARED TOWARDS ARCHITECTS SERVING THE C&I SECTOR.

GENERAL SECTION

Name: **NAME**_____

Agency or Company: **FIRMNAME**_____

Title: **TITLE**_____

Years in Current Position: **YEARSJOB** _____

We would first like to get a simple snapshot understanding of your company, the background of your staff, and the types of Vermont customers you have.

2. How old is your company? _____ **YEARSCO**
3. Can you tell me how many employees you have, including yourself? _____ **EMPCOUNT**
4. And, how many of these, including yourself, are registered architects? _____ **REG_ARCH**

[IMPORTANT] All the questions in this interview will pertain only to work done within Vermont. As close as you are able, please give me your answers to the following questions in terms of Vermont projects only, and within 2004.

5. Some of the questions I'll be asking will require answers in terms of the number or percentage of your 2004 Vermont projects. Would you prefer to answer these questions in terms of the number of Vermont projects (such as "10 out of all Vermont projects last year"), or, the estimated percentage of Vermont projects (such as "15% of last year's Vermont projects")?

- a. ___By percentage
- b. ___ By number of projects

How many Vermont projects did you/your firm complete in 2004? (By "complete" I mean you completed the design work and all equipment choices were finalized)

- c. _____ Vermont projects
- d. How much estimated square feet did these projects cover? _____

BASELINE EQUIPMENT, SYSTEMS, AND PRACTICES SECTION

6. a. In the past year, did any of your clients raise the issue of concern for energy costs in the facility, or include energy-efficiency in their goals for the project?"

1. ___NO > SKIP TO Q7 2. ___YES

b. What [number/percent] of your Vermont projects?

___% or ___#

c. What were the typical concerns or topics raised?

d. What kinds of customers and/or what types of projects were they?

7. How many of the projects you worked on had a client who was committed to having a facility more energy-efficient than their last facility or than similar facilities in the state?

___% or ___#

8. a. Likewise, were there projects in 2004 where *you* offered the client choices between standard and high efficiency designs or systems early in the design process?

1. ___NO > SKIP TO Q9 2. ___YES

b. What [number/percent] of your projects last year had that kind of situation?

___% or ___#

c. What kinds of customers and/or what types of projects were they?

d. What were the kinds of options that you brought to their attention, and how successful were you in getting them to accept the more energy efficient options?

The next set of questions examines the incorporation of various technologies in the design process. Please consider your answers in terms of Vermont projects.

9. In the past year, have you incorporated passive systems to augment the electromagnetic building systems or envelope designs to reduce HVAC needs?

1. ___NO > SKIP TO Q10 2. ___YES



IF YES> Did that include:

Measure	(1) No	(2) Yes	(3) IF YES > What % OR # of projects
a. Optimizing the thermal mass of the building or its footprint			
b. Selecting the building skin			
c. Designing passive ventilation			
d. Collecting solar gain, night cooling, night flushing			
e. Any other passive systems? DESCRIBE >			
f. Of these projects, for how many did the final HVAC design or capacity also take into account these passive features?			

10. In the past year, have your projects incorporated any daylighting features?

1. __NO > SKIP TO Q11 2. __YES

Did that include:

Measure	(1) No	(2) Yes	(3) IF YES > What % OR # of projects
a. Shading devices e.g. louvers, projections, light shelves			
b. Roof designs, e.g. skylights, clearstories, roof monitors, stepped roofs, sawtooth roofs			
c. Optimizing daylight penetration through location of windows in wall, floor to ceiling heights, floor plate configuration, etc.			
d. Including lots of windows [CONTROL QUESTION]			
e.  Did any of these projects employ a daylighting strategy in contrast to including some daylighting features?			
f.  Of the projects that incorporated daylighting features in the final design, how many specifically had photodimming controls?			

11. In the past year have you or your consultants used computer models to simulate the energy use of buildings or lighting?

1. __NO > SKIP TO Q12 2. __YES

Did you use or ask your consultants to use:

Measure	(1) No	(2) Yes	(3) IF YES > What % OR # of projects
a. models to simulate building energy use, e.g. Energy 10, DOE2, Energy Sim			
b. models to simulate building cooling and heating loads for HVAC equipment e.g. Write N, CHVAC, DOE2			
c. <input type="checkbox"/> Models to simulate lighting, e.g. daylighting models, lighting simulation modes, photometric models			

d. ☐ Can you estimate how much square footage this lighting modeling covered in 2004?

1. __NO 2.__ YES

e. [IF YES] > How much? ____ SF

In the past year, did you specify...

12. a. ...low-E glazing for any of your projects in Vermont?

1. __NO 2.__ YES

b. [IF YES] > What percent of projects? ____ %

13. a. ☐ ...the solar heat gain factor on any of your projects in Vermont?

1. __NO 2.__ YES

b. [IF YES] > What percent of projects? ____ %

14. a. In the past year, have you used building commissioning as a strategy to ensure quality buildings that perform efficiently and properly?

1. __NO > GO TO Q15 2.__YES

☐ What [number/percent] of projects did you use a third party commissioning agent?

b. ____ % or ____ #

IF ABOVE IS MORE THAN ZERO > Did you use a third party commissioning agent to review:

	(1) No	(2) Yes
c. Designs		
d. Construction bids		
e. Verify proper installation and test operation of building equipment and systems		

SKIP Q15 IF Q14a IS "YES"

15. Why did you not use commissioning on your projects [DO NOT PROMPT – CODE TO BEST ANSWER] a. _____

1. Don't know what commissioning is
2. Client(s) unwilling to pay for it
3. Don't believe it is necessary or worth the cost
4. Don't want a third party checking the work
5. The consultants I use don't want a third party checking their work
6. Expert commissioning agents are not available locally
7. Buildings perform well without it

b. OTHER (specify) _____

16. a. In the past year, what percent of time are you given a wide latitude on design approaches?

b. In those situations, do these clients allow you to expend additional design time and billing to explore alternatives not specifically asked for? 1. __NO 2. __YES

c. IF YES > Probe for further details > How do those situations work?

17. a. In the past year, have you been involved in the process to obtain ACT 250 permits, specifically, demonstrating that a project will meet the energy guidelines?

1. __NO 2. __YES 3. __DK

b. IF YES > For what [# or %] of projects? _____

c. In your opinion, do you believe that Act 250 results in a higher, same, or lower level of energy efficiency being incorporated in buildings than without Act 250?

1. ___More 2. ___Same 3. ___ Less 4. ___ DK

d. In your experience, would you say that you design projects differently for Act 250 than for non-Act 250 projects? If so, how?

ROLE OF SUPPLIERS, DESIGNERS, AND CONTRACTORS SECTION

18. a. How much do you depend on distributors or suppliers to provide you with information on new products and specifications?

b. how much do they influence your choice of what equipment or systems to install?

c. Do you ever contact them for information? To what extent?

19. In the past year, other than architects in your firm, what types of professionals contributed to the design of your projects' lighting systems? **[MULTIPLE RESPONSES ALLOWED]**

	(1) No	(2) Yes	(3) DO NOT HAVE
a. Lighting designers in your firm?			
b. Electrical engineers in your firm?			
c. Consulting lighting designers?			
d. Consulting electrical engineers?			
e. Consulting electrical contractors?			
f. Lighting suppliers or manufacturer reps?			

20. Of these, who do you tend to rely on, and to what extent?

21. Likewise in the past year, other than architects in your firm, what types of professionals contributed to the design of your projects' HVAC systems? [MULTIPLE RESPONSES ALLOWED]

	(1) No	(2) Yes	(3) DO NOT HAVE
a. Members of your firm?			
b. Consulting mechanical engineers?			
c. Consulting mechanical contractors?			
d. Equipment suppliers or manufacturer reps?			

22. Of these, who do you tend to rely on, and to what extent?

23. If you include yourself and the customer along with those just mentioned in the previous questions, who would you say tend to set the range of choices, and make the final decisions, for:
[PROBE FOR DETAILS AND SITUATIONS]

a. lighting?

b. HVAC?

RECOGNITION AND USE OF EVT/BED SECTION

24. a. Have you heard of an organization that promotes energy efficiency statewide in Vermont?

1. ☐ NO > SKIP DOWN TO Q33 2. ☐ YES 3. ☐ DK

b. IF YES > What is the name of the organization? [RECORD VERBATIM]

25. a. [IF EVT OR BED IS MENTIONED] Are you familiar with any Efficiency Vermont/Burlington Electric design services and initiatives for the commercial-industrial sector?

[RECORD ANSWER. USE THE BELOW LIST TO BEST IDENTIFY RESPONSES; OKAY TO PROMPT FOR CLARIFICATIONS – SKIP TO Q33 IF RESPONDENT IS NOT FAMILIAR WITH ANY PROGRAMS OR SERVICES]

> LIST OF EVT SERVICES AND INITIATIVES FOR THE COMMERCIAL SECTOR

- Business New Construction
- Existing Businesses
- Dairy Farms
- Strategic Partners
- Schools
- Multifamily Buildings
- State Buildings
- Water and Wastewater Treatment Facilities
- Ski Areas
- Design support services
- Scheduled workshops/events hosted/sponsored by EVT/BED

26. a. [IF SERVICES ARE MENTIONED] Have you used, or been involved in any projects where a customer has used, these services or incentives?

1. ☐ NO SKIP TO Q33 2. ☐ YES

27. In the years since you've begun working with EVT/BED, has the percentage of your project designs incorporating energy efficiency increased, decreased, or remained the same?

1. ☐ Increased 2. ☐ Decreased 3. ☐ Remained the same

28. What factors have influenced this change?

29. Thinking about why the percentage of project designs that incorporate more energy efficiency, were the technical services you received or your customer received from EVT:

1. ___ Not a factor at all in the change 2. ___ A partial factor 3. ___ The main reason in the change
4. ___ Unsure 5. ___ Don't know

30. How long have you been working with [EVT/BED]?

31. a. How would you characterize the extent you've worked with them over the past year – constantly, frequently, occasionally, infrequently, rarely? _____

b. Why do you work with them?

c. IF Q 31a IS LESS THAN "FREQUENTLY" > What is the common reason or cause for [EVT/BED] not being involved in other projects?

d. [SKIP IF NO PARTICIPATION MENTIONED] What particular EVT services or benefits have you found particularly helpful?

e. Any services offered that, although you may appreciate the intent, is not particularly useful or helpful to you?

f. What problems, if any, have you experienced?


g. Are there any improvements you might think that would be effective in helping your company understand and promote energy efficient equipment to commercial/industrial new construction customers? Why do you say that?

32. For your Vermont projects in 2004 where customers have used EVT incentives...

a. What estimated percentage of them would you have designed or recommended "standard" or less efficient designs if those incentives were not available?

b. Are there any particular business segments or types where the incentives remain important in order to get the customer to choose the high efficiency option? Why?

COMMERCIAL CONSTRUCTION GUIDELINE – INDICATOR/AWARENESS SECTION

33.  a. Lastly, are you aware of any Vermont state requirements for energy efficient construction?
[NO PROMPTS - CODE TO BEST FIT]

1. ___NO > SKIP Q34 and Q35; CLOSE OUT INTERVIEW

2. ___YES

34. What do you know it as? [RECORD VERBATIM] _____

CODE FOR FIT:

1. ___ Verbatim OR close: **2001 Vermont Guidelines for Energy Efficiency Commercial Construction**

2. ___ Verbatim OR close: **Act 250 requirements**

3. ___ Verbatim OR close (as underlined): **2000 IECC or ASHRAE 90.1 – 1999**

4. ___ Partial mention of (1) or (2)

5. ___ Insufficient or vague description

35. What percentage of your projects do you check for fit with these guidelines/standards/codes during the design process?

1. ___ At least 25% of our projects 2. ___at least 50% of our projects 3. ___at least 75% of our projects
4. ___ All or nearly all of our projects

SURVEY OF VERMONT C&I CONSTRUCTION PERMIT HOLDERS

FROM DLI DATABASE

Business Name:	Site Address:
City	ZIP
Contact Name	Sample Stratum
Telephone Number	Alt. Phone Number
Project Name	
Type of Project: New or Ren/Rem/Add	Permit Issue Date
Vermont Geography Code: 1 – Chittenden County; 2 – Small Urban; 3 – Rural	

Ask for name on list, if one is provided.

Lead-in and Screeners

Hello, my name is _____ with _____. I am conducting research for the Vermont Department of Public Service. I am talking with businesses that completed construction, renovation, or remodeling, remodeling projects in the past few years. This is not a sales call. May I please speak with the owner or general manager of (firm name from list)?

{If refused:} Perhaps there is someone who works closely with the owner that I might talk with, someone who is knowledgeable about the building and was likely to have been involved in the construction project. May I speak with that person?

I am conducting research for the Vermont Department of Public Service. I am talking with businesses that completed construction, renovation, or remodeling, remodeling projects in the past few years.. This is not a sales call. I would like to ask you a few questions about your company's construction project. My questions will take about 20 minutes. Your responses will remain confidential and cannot be associated in any way with your company.

Is this a good time for you to talk, or can we arrange a more convenient time?

(Set appointment: _____)

{If respondent is unwilling to talk, ask:} Is there someone else that I might speak with who is knowledgeable about the your company's facilities and was likely to have been involved in the construction project.

(Name: _____ Phone: _____)

Are you familiar with a construction or renovation project undertaken since (YEAR OF PERMIT FROM LIST) at (SITE ADDRESS FROM LIST).

1. Yes → Continue with questionnaire.
2. No → Ask to speak with someone who may be familiar with the project.

{In screening questions A through D, if someone answers “don’t know”, ask to speak with someone who might know the answer and start over.}

A. Does (FIRM NAME FROM LIST) own and occupy the property at (SITE ADDRESS FROM LIST), or does it own the property and lease it to a tenant that occupies it, or does (FIRM NAME) lease the facility from another owner?

1. Own and occupy
2. Own and leases to a tenant
3. Occupies space leased from the owner
4. Manages the space for the owner and tenant

if 2, 3, or 4 ask.

B. Were you or someone in your firm actively involved in making design and equipment selections for the project?

1. Yes
2. No ==> thank and terminate

C. What stage of completion has the project reached? Would you say the project is ...

1. Fully built and fitted out for occupancy
2. Under construction
3. Design complete but construction not begun
4. In design
5. An earlier phase of development.

IF C = 4 OR 5, THANK AND TERMINATE.

D. Which type of building best describes the building at (address from list). Is it an ..

1. Office
2. Retail
3. Industrial
4. School (non-college)
5. Warehouse
6. Public buildings, health care, college, church or other institutional
7. Multi-family building four stories or taller
8. Multi-family building one, two or three stories ==> thank and terminate
9. Other

Project Description

P1a. Did the construction project involve...(READ RESPONSES)? CODE YES =1; 0 = NO.

IF MORE THAN ONE RESPONSE MENTIONED FOR P1a, ASK P1b. ELSE SKIP TO P2.

P1b. FOR EACH RESPONSE =1 ASK: Approximately what percent of the floor space in the project was accounted for by [RESPONSE TO P1a]? ENTER PERCENT OR 999 FOR DK/REFUSED.

Type of Project	P1a	P1b
1. Construction of a new building		
2. An addition to an existing building		
3. A gut rehab or major renovation of an existing building		
4. A remodel of part of an existing building		
5. Installation of major manufacturing or industrial process systems		
6. Other type of construction activity (Specify)		

IF Q1 = 1 SKIP TO 3

P2. How old would you guess the building is? PROBE TO FIT

1. Less than 5 years old
2. Between 5 and 20 years old
3. Older than 20 years
4. Don't know

P3. In about what year did your business occupy the building?

19__/20__ {Note: 00=2000, 01=2001, 02=2002}

DK ==> Probe:

3a. Would you say it's been about

1. Less than 5 years
2. Between 5 and 10 years
3. Between 10 and 20 years
4. More than 20 years
5. Don't know

P4. What is your best estimate of the square footage of the building? (Best guess is OK)
READ IF NEEDED

1. Under 5,000 sq. ft.
2. 5,000 to just under 10,000 sq. ft.
3. 10,000 to just under 25,000 sq. ft.
4. 25,000 to just under 75,000 sq. ft.
5. 75,000 sq. ft. or more
6. Don't know

IF P1=1 SKIP TO F0

P5. What would you guess is the total square footage of the area affected by the project?
(Best guess is OK) READ IF NEEDED.

1. Under 10,000 sq. ft.
2. 10,000 to just under 25,000 sq. ft.
3. 25,000 to just under 50,000 sq. ft.
4. 50,000 to just under 100,000 sq. ft.
5. 100,000 sq. ft. or more
6. Don't know

F0. Which of the following objectives did this project (these projects) address?

[READ LIST]

[1. YES 0. (otherwise)]

- A. Construction or expansion of floor space
- B. Reconfiguration of existing space
- C. Replacement of failing mechanical or electrical systems
- D. Health or safety compliance
- E. Increased staff or customer comfort
- F. Energy cost reduction
- G. Reduction of operating costs other than energy
- H. (OTHER_____)

F1. Which of the following systems were installed or changed as a part of this project (these projects)?

[ASK ONLY ITEMS MENTIONED IN B1-B6. ASSUME EVERYONE HAS LIGHTING]

[1. YES 2. NO 77. N/A (None in Building) (88.(DK) 99. (REF)]

- F1A. Space Heating
- F1B. Space Cooling or Ventilation
- F1C. Water Heating
- F1D. Cooking
- F1E. Refrigeration
- F1F. Chilled Water
- F1G. Lighting

F2. Did you use any of the following kinds of professionals on the project?

a. Architect

- 1. Yes
- 2. No
- 3. DK

IF F2a = 1 ASK F2a1. ELSE F2b.

a.1. What was the name of the architect or architecture firm?

ENTER VERBATIM; DK FOR DON'T KNOW: _____

a.2. Was this architect or architecture firm located in Vermont?

- 1. Yes
- 2. No
- 3. DK

b. General Contractor

- 1. Yes
- 2. No
- 3. DK

IF F2b = 1 ASK F2b1. ELSE F2c.

b.1. What was the name of the general contractor or contracting firm?

ENTER VERBATIM; DK FOR DON'T KNOW: _____

b.2. Was this general contractor located in Vermont?

- 1. Yes
- 2. No
- 3. DK

c. Heating and Cooling Contractor

- 1. Yes
- 2. No
- 3. DK

IF F2c = 1 ASK F2c1. ELSE F2d.

c.1. What was the name of the heating and cooling contractor?

ENTER VERBATIM; DK FOR DON'T KNOW: _____

c.2. Was this firm located in Vermont?

- 1. Yes
- 2. No
- 3. DK

d. Lighting or electrical contractor

1. Yes
2. No
3. DK

IF F2d = 1 ASK F2d1. ELSE F2e.

d.1. What was the name of the lighting or electrical contractor?

ENTER VERBATIM; DK FOR DON'T KNOW: _____

d.2. Was this firm located in Vermont?

1. Yes
2. No
3. DK

e. Mechanical Engineer

1. Yes
2. No
3. DK

f. Electrical Engineer

1. Yes
2. No
3. DK

F3.a Did you ask any of the building professionals you worked with to take on-going energy costs into account when designing the construction project?

1. Yes
2. No
3. DK

IF F3.a = YES ASK F3.b. ELSE F4.a

F3.b Which of the building professionals did you ask to take energy costs into account? ACCEPT MULTIPLES.

1. Architect
2. General Contractor
3. Heating and Cooling Contractor
4. Lighting or electrical contractor
5. Mechanical Contractor
6. Electrical engineer

F4.a Did the building professionals you worked with recommend any energy efficiency features to you in the course of developing project designs and equipment specifications?

1. Yes
2. No
3. DK

IF F4.a = YES ASK F4.b. ELSE SKIP TO INSTRUCTIONS TO AA0..

F4.b What measures were those? [LIST UP TO 4 VERBATIM]

F4.c Did you include [NAME OF MEASURE FROM F4b] in the final design of the project? CODE 1 = YES; 2 = NO; 3 = DK OR REF

Energy Efficiency Measure (VERBATIM)	F4a	F4b
1.		
2.		
3.		
4.		

F4.d FOR EACH MEASURE CODED 2 IN F4b, ASK: What were your main reasons for not including the [NAME OF MEASURE] in the project?

1. _____
2. _____
3. _____
4. _____

Technology-specific Questions

HVAC: ASK SECTION AA IF F1A = 1 or F1B=1

AA0. Did you use any of the following energy efficiency approaches in the project(s) that involved space heating, cooling, and ventilation systems?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- AA1. Computer modeling to design or size the system
- AA2. Testing or commissioning of the system after installation to ensure efficient operation
- AA3. High efficiency packaged units or chillers
- AA4. Enthalpy economizers for 'free cooling'
- AA5. Demand Control Ventilation
- AA6. Variable speed fans
- AA7. Variable speed pumps for chillers
- AA8. High efficiency boilers
- AA9. High efficiency furnaces
- AA10. Boiler reset and cutout
- AA11. Energy management systems
- AA12. Set back thermostats
- AA13. Any other energy efficiency approach? (Specify_____)

EVT Permit Holder Survey: Commercial

AA14 Which of the following kinds of building professionals participated in designing and selecting equipment for the heating and cooling systems in your facility. CODE 1 = YES; 2 = NO; 3 = DK.

AA15 FOR EACH CATEGORY FOR WHICH 7.a = 1, ASK: Using a scale of 1 to 5 where 1 means 'not at all important' and 5 = 'very important', how important was the [BUILDING PROFESSIONAL] in HVAC system design and equipment selection decisions?

	AA14	AA15
Architect		
Mechanical Engineer		
HVAC Contractor		
General Contractor		

WATER HEATING: ASK SECTION CC IF F1C = 1

CC0. Did you use any of the following in the project(s) that involved domestic water heating systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

CC1. Heat recovery equipment

CC2. Ganged boilers for variable loads

CC3. Equipment with high Energy Factors

CC4. Variable speed circulating pumps

CC5. Instantaneous hot water heaters near points of use

CC6. Any other? (Specify_____)

LIGHTING: ASK SECTION GG IF F1G = 1

GG0. Did you use any of the following in the project(s) that involved lighting systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

GG1. T-8 fluorescent lamps

GG2. Super T-8 fluorescent lamps

GG3. T-5 fluorescent technology

GG4. Compact Fluorescent Fixtures or Bulbs

GG5. LED Exit Lights

GG6. Occupancy controls in offices

GG7. Daylighting controls

GG8. Task-oriented light levels

GG9. Any other (Specify_____)

GG10 Which of the following kinds of building professionals participated in designing and selecting equipment for the lighting systems in your facility. CODE 1 = YES; 2 = NO; 3 = DK.

GG11 FOR EACH CATEGORY FOR WHICH 7.a = 1, ASK: Using a scale of 1 to 5 where 1 means 'not at all important' and 5 = 'very important', how important was the [BUILDING PROFESSIONAL] in lighting system design and equipment selection decisions?

	GG10	GG11
Architect/Interior Designer		
Electrical Engineer		
Lighting or Electrical Contractor		
General Contractor		

REFRIGERATION: ASK SECTION EE IF F1E = 1

EE0. Did you use any of the following in the project(s) that involved refrigeration systems?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- EE1. Floating head pressure control for central systems
- EE2. Variable capacity compressors for central systems
- EE3. Efficient evaporator fan motors
- EE4. Cycling or humidistats for anti-sweat heaters for cases
- EE5. Night covers for cases
- EE6. Doors on freezers and refrigerator cases
- EE7. An energy management system
- EE8. High efficiency low temperature cases
- EE9. High efficiency medium temperature cases
- EE10. Low-heat/no-heat case doors
- EE11. Any other (Specify_____)

H. ACT 250

H1. Did the project require obtaining ACT 250 permits, demonstrating that your project will meet Vermont's commercial building energy guidelines?
1. Yes
2. No
3. DK

H2. Have you been involved in any other projects that required the ACT 250 permit?
1. Yes
2. No
3. DK

IF H2 = YES, ASK H3.

IF H1 AND H2 = 2 OR 3, SKIP TO G1.

H3. How many projects?
ENTER NUMBER; 88 (DK); 99 (REF) _____

IF H1 OR H2 = 1 ASK H4. ELSE SKIP TO G1.

H4. Did the Act 250 reviews in which you participated prompt you to incorporate energy efficiency features in your building that you had not originally planned to include?

1. Yes
2. No
3. DK/REF

IF H4 = 1, ASK H5. ELSE SKIP TO G1.

H5. What were those features?

ENTER VERBATIM. 88 (DK); 99 (REF) _____

H6 In developing these projects, was it your understanding that receipt of a building permit was contingent upon inclusion of specific energy efficiency measures in the design of the project?

1. Yes
2. No
3. DK/REF

G. EFFICIENCY VERMONT PROGRAM PARTICIPATION

G0 Have you heard of an organization that promotes energy efficiency statewide in Vermont?

1. Yes
2. No
3. DK

IF G0 = 1 ASK G0a. ELSE END.

G0a. What is the name of the organization?

1. Efficiency Vermont
2. Vermont Efficiency
3. EVT
4. The Efficiency Utility
5. Other

IF F7A = yes → ASK G1A & G2A where TYPE = "Space Heating"
IF F7B = yes → ASK G1B & G2B where TYPE = "Space Cooling or Ventilation"
IF F7C = yes → ASK G1C & G2C where TYPE = "Water Heating"
IF F7D = yes → ASK G1D & G2D where TYPE = "Cooking"
IF F7E = yes → ASK G1E & G2E where TYPE = "Refrigeration"
IF F7G = yes → ASK G1F & G2G where TYPE = "Lighting"

G1#. Did your organization use Efficiency Vermont financial incentives or services for the project involving <TYPE>?

1. YES 2. NO 88.(DK) 99. (REF)

G2#. [\[ASK IF G1#=YES\]](#) Which services or program offerings did you use?

- 1. Financial Incentives (rebates)
- 2. Technical Assistance
- 00. Or something else? (SPECIFY_____)
- 88. (DK)
- 99. (REF)

[IF NO EVT PARTICIPATION MENTIONED IN G1 ABOVE →GO TO G4](#)

G3. Using a scale of 1 to 5, where 1 represents 'no influence' and 5 represents 'a great deal of influence', how much influence did the assistance your organization received from Efficiency Vermont have on the design and equipment selection for your project?

1	2	3	4	5	88	99
no influence				great deal	DK	Refused

IF G3 = 1 OR 2 ASK G3a. IF G3 = 3, 4, OR 5. ASK G3b.

G3a. Why do you believe the assistance you received from Efficiency Vermont had relatively little effect on the design and equipment selection for the project?

ENTER VERBATIM: _____

GO TO G4.

G3b. In what ways did the assistance you received from Efficiency Vermont influence the design and equipment selection for the project?

ENTER VERBATIM: _____

- G4. **[ASK IF NO EVT]** Why didn't your company participate in Efficiency Vermont's programs when it was carrying out these projects? [DO NOT READ. ACCEPT MULTIPLES]
1. (Did not know about Efficiency Vermont at the time)
 2. (Not enough time to find out about the program)
 3. (Too much paperwork)
 4. (Rebate too low to justify getting involved)
 5. (Didn't believe Efficiency Vermont would provide expertise beyond what was already available)
 6. (Concerned that involvement with Efficiency Vermont would lead to greater scrutiny in the permitting process)
 00. (OTHER_____)
 88. (DK)
 99. (REF)
- G5 Has your organization used services or information from EVT in situations other than the projects we have already discussed?
1. YES 2. NO 88.(DK) 99. (REF)
- G6. **[ASK IF G5 =YES]** Which services or program offerings did you use?
1. Financial Incentives (rebates)
 2. Technical Assistance or Consultation
 3. Training
 00. Or something else? (SPECIFY_____)
 88. (DK)
 99. (REF)
- G7 Over the past three years, has the amount of personnel, management, and financial resources your organization devotes to energy cost control increased, decreased, or stayed about the same?
1. Increased
 2. Decreased
 3. Stayed about the same
 88. (DK)
 99. (REF)
- G8 **[ASK IF G7 =1 or 2]** On a scale of 1 to 5, where 1 is 'not at all important' and 5 is 'very important', how important was your organization's experience with Efficiency Vermont in bringing about that change?
- [CODE 1 TO 5; 88 = DK; 99 = REF.]

G9 Over the past three years, has your organization's effectiveness in energy management increased, decreased, or stayed about the same?

1. Increased
2. Decreased
3. Stayed about the same
88. (DK)
99. (REF)

G10 [ASK IF G9 =1 or 2] On a scale of 1 to 5, where 1 is 'not at all important' and 5 is 'very important', how important was your organization's experience with Efficiency Vermont in bringing about that change?

[CODE 1 TO 5; 88 = DK; 99 = REF.]

ON SITE RECRUITMENT SCRIPT

OR1. Finally, as part of this energy efficiency evaluation for the Vermont Department of Public Service, we are conducting a number of on-site visits to organizations such as yours to make note of specific features of your energy using equipment. This data is very helpful for developing energy efficiency programs and planning for the state's future energy needs. This on-site survey would be conducted at your convenience and would take about one hour. As compensation for your participation in this important research, we will pay you \$50.

Do you think you might be interested in participating?

- 1 Yes
- 2 No → [Thank and Terminate]

[If Asked: You would be visited by a contracted on-site interviewer working on behalf of the State of Vermont.]

OR2. [IF OR1=1] Great! You will be contacted by an on-site survey specialist to schedule an appointment. I'll just need to get a little information:

Name * _____
 Telephone *CONFIRM _____
 Organization _____
 Address: _____
 Best time to Call _____

Thank you very much for your participation in survey.

EVT COMMERCIAL END-USER SURVEY

Final 5/1

Business Name:	Address:
City	ZIP
SIC Code	Sample Stratum
Telephone Number	Contact Name

INTRODUCTION

INTRO: Hello, this is _____ calling from Research America on behalf of the Vermont Department of Public Service. I would like to speak with the person at this location who is most knowledgeable about decisions affecting your energy using equipment such as cooling and lighting systems.

Would that be you?

IF YES→ "Great!" [GO TO S0]

**If timing is inconvenient, record name and schedule a call back.*

IF NO→ Ask to speak to the appropriate person and repeat INTRO.*

**If appropriate respondent is not available record name and schedule a call back.*

[WE WANT THE INDIVIDUAL MOST KNOWLEDGEABLE AT THIS LOCATION, EVEN IF BUILDING IS OWNED BY OFF-SITE MANAGER. DO NOT RECORD INFORMATION FOR INDIVIDUAL AT SOME OTHER BUILDING OR LOCATION.]

[IF NEEDED] This is a fact-finding survey only – we are NOT interested in selling anything, and responses will not be connected with your firm in any way.

[IF NEEDED] The Department of Public Service is seeking to better understand how businesses think about energy in order to improve energy saving programs for commercial facilities.

[IF NEEDED] This survey usually takes about 15 minutes, depending on your responses.

S0. We are conducting important research among Vermont businesses and agencies regarding the buildings they occupy and the major equipment they use.

S1. I'd first like to confirm that this is <Business Name>. Is that correct?

- | | |
|----------|----------------------------------|
| 1. Yes | → GO TO S3 |
| 2. No | → GO TO S2 |
| 8. (DK) | → Thank & Terminate |
| 9. (REF) | → Thank & Terminate ¹ |

¹ Responses in parentheses are not read aloud.

S2. Is this <2nd D&B Business Name>?

- 1. Yes
- 2. No →Thank & Terminate
- 8. (DK) →Thank & Terminate
- 9. (REF) →Thank & Terminate

S3. [Ask if # employees<5] I'd also like to confirm that your establishment is in a commercial, industrial, or institutional building and NOT in a home. Is that correct?

- 1. Yes, it is in a building
- 2. No, it is in a home →Thank & Terminate
- 88. (DK) →Thank & Terminate
- 99. (REF) →Thank & Terminate

A. ESTABLISHMENT CHARACTERISTICS

A0. I'd like to start by asking you a few questions about your organization and facility.

A1. I'm going to read a list of types of buildings. Please tell me which best describes the building your establishment occupies. Is it primarily:

[READ LIST]

- 1. Office space
 - 2. Restaurant
 - 3. Lodging
 - 4. Retail
 - 5. Grocery
 - 6. College
 - 7. School
 - 8. Healthcare
 - 9. Some other public building or institution (SPECIFY_____)
 - 10. a Multi-family building
 - 11. Industrial (SPECIFY_____)
 - 00. Or something else (SPECIFY_____)
 - 88. (DK)
 - 99. (REF)
- Thank & Terminate

A2. What is your job title or role? _____[DO NOT READ]

1. (Owner / President / CEO)
2. (Manager or Director of Facilities / Maintenance / Buildings & Grounds)
3. (Energy Manager or Director)
4. (OTHER Manager or Director SPECIFY_____)
5. (CFO / Controller / Treasurer)
6. (OTHER Financial / Administrative position)
7. (Principal or Superintendent)
8. (Vice President)
00. (OTHER_____)
88. (DK)
99. (REF)

A3. How many employees work at this location?

ENTER NUMBER _____

DK = 88,888

REF = 99,999

A4. What is the total enclosed square footage of the portion of the facility that you occupy at this location? Your best estimate will be fine.

ENTER NUMBER _____

DK = 88,888,888 REF = 99,999,999

A5. Does your organization.....

1. Own the space that it occupies in this facility [→GO TO A6b](#)
2. Lease the space that it occupies
3. Own a part and lease the remainder
88. (DK)
99. (REF)

A6. Are any of your energy costs included in your normal lease payment?

1. Yes
2. No [→GO TO A6b](#)
88. (DK) [→GO TO A6b](#)
99. (REF) [→GO TO A6b](#)

A6a. Which energy costs are included in your normal lease payment?

[READ LIST. ACCEPT MULTIPLES]

1. Fuel Oil
2. Natural Gas
3. Propane/bottled gas
4. Electricity
00. Anything else?_____
88. (DK)
99. (REF)

A6b. Which fuel is used for most of the space heating at this location?

1. Fuel Oil
2. Natural Gas
3. Propane/bottled gas
4. Electricity
00. Or something else? _____
88. (DK)
99. (REF)

A7. [SKIP if A6a=4] What is your best estimate of your average monthly electricity bill paid by your firm for this location?

ENTER \$ PER MONTH _____ DK = 8,888,888 REF = 9,999,999

A8. What is your best estimate of your average monthly energy bills over all fuels paid by your firm for this location - excluding electricity?

ENTER \$ PER MONTH _____ DK = 8,888,888 REF = 9,999,999

A9. Is this facility... [READ LIST]

1. Your firm's only location
2. A branch location of a firm based in Vermont
3. A branch location of a firm based OUTSIDE Vermont
4. A franchise location of a firm based in Vermont
5. A franchise location of a firm based OUTSIDE Vermont
6. Or, the headquarters of a firm with multiple locations
00. (OTHER _____)
88. (DK)
99. (REF)

B. END USES and MAINTENANCE

B0. Which of the following kinds of equipment are in this facility? Do you have...

[1. YES 2. NO 88.(DK) 99. (REF)]

- B1. Space Heating
- B2. Space Cooling
- B3. Water Heating
- B4. Cooking
- B5. Refrigeration
- B6. Central Ventilation

ASK NEXT QUESTIONS IN SECTION B ONLY FOR ITEMS MENTION IN B1 THROUGH B6

IF B1=yes OR B2=yes →ASK B1A & B1B & B1C where TYPE="heating or cooling"

IF B3=yes →ASK B3A & B3B & B3C where TYPE ="water heating"

IF B4=yes →ASK B4A & B4B & B4C where TYPE ="cooking"

IF B5=yes →ASK B5A & B5B & B5C where TYPE ="refrigeration"

IF B6=yes →ASK B6A & B6B & B6C where TYPE ="chilled water"

B#A Does your company maintain the <TYPE> equipment at this facility

1. using internal staff,
2. through a maintenance service contract your company pays for,
3. a combination of internal staff and contractors, or
4. is the maintenance handled by the building owner or manager?

88. (DK)

99. (REF)

B#B [ASK IF B#A=2 or 3] Does the service contract for the <TYPE> equipment at this facility cover periodic assessment and maintenance of the system's energy efficiency?

1. Yes
2. No

88. (DK)

99. (REF)

B#C [ASK IF B#B=1] Can you please briefly describe or give an example of how that works?
OPEN_____

(IF NEEDED: That is, what is done or looked at during the periodic assessment and maintenance of the system's energy efficiency)

C. LIGHTING

C0. Next, I'd like to ask you some questions about the lighting at this location.

C1. Roughly speaking, what percentage of your indoor floor space is lit by. . . ENTER
PERCENTAGE, 888 FOR DK; 999 FOR REF 0 FOR NONE

- a. Fluorescent tubes
- b. Regular incandescent bulbs
- c. Compact fluorescent bulbs [READ DESCRIPTION IF NEEDED]²
- d. High intensity discharge lighting such as metal halide, sodium or mercury lamps

² "Compact fluorescent light bulbs are small fluorescent bulbs that fit in regular light bulb sockets. Compact fluorescent bulbs look different than standard bulbs. They are often made out of thin tubes of glass bent into loops."

C2. [ASK ONLY IF C1a > 0] Are most of the fluorescent tubes. . .

1. T-12 lamps– These standard type lamps are 1 ½” in diameter and are usually 34 watts, or
 2. T-8 lamps– these newer type lamps are 1” in diameter and are usually 32 watts.
88. (DK)
99. (REF)

C3. Approximately what percentage of the exit lamps in this facility use LEDs (Light Emitting Diodes)? [READ DESCRIPTION IF NEEDED]³

[ENTER PERCENT. 888 FOR DK; 999 FOR REF 0 FOR NONE]

D. ENERGY MANAGEMENT ORGANIZATION AND PRACTICES

D0. The next set of questions focuses on your company's energy management activities.

D1. Is there a person, group, or department in your organization that is assigned by top management to manage energy use and costs?

1. Yes, one person
 2. Yes, a group
 3. Yes, a department
 4. No [→GO TO D5](#)
88. (DK) [→GO TO D5](#)
99. (REF) [→GO TO D5](#)

D2. What is the title of that <D2A: PERSON, GROUP, OR DEPARTMENT>?

ENTER VERBATIM _____
[88 = DK, 99 = REFUSED]

³ “An LED looks like flat panel Exit sign with no bulbs.”

D3. **[ASK ONLY IF A8 ≠1]** Is this <D2A: PERSON, GROUP, OR DEPARTMENT> located at your facility, corporate headquarters, or another location?

- 1. Respondent's facility
- 2. Corporate headquarters
- 3. Another facility
- 88. (DK)
- 99. (REF)

D4. **[ASK ONLY IF A8 ≠1]** Who does this <D2A: PERSON, GROUP, OR DEPARTMENT> report to? [PROMPT IF NECESSARY]

- 1. Plant or General Manager
- 2. Facilities Manager
- 3. Building or Plant Engineer
- 4. Office Manager
- 5. Treasurer/VP Finance
- 6. Chief Operating Officer
- 7. Central Corporate Facilities Manager
- 8. President/ CEO
- 9. Owner/Proprietor
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

D5. Are there persons in your organization who have been assigned responsibility for the following activities?

[1. YES 2. NO 88.(DK) 99. (REF)]

- A. Tracking energy use and costs over time for the facility as a whole
- B. Monitoring energy use for key building or production systems
- C. Identifying facility improvements to reduce energy use and costs on an ongoing basis

**IF NONE OF THE ITEMS IN D5 ARE YES AND IF D2 ≠YES AND THEN ASK D7
→ELSE GO TO D8**

D7m1. What do you think is the main reason why your company has not assigned staff to energy management activities? [DO NOT READ. RECORD ONE RESPONSE]

D7m2 Are there other reasons? [DO NOT READ. ACCEPT MULTIPLE RESPONSES]

1. (Energy costs are not large enough to justify spending management or staff time.)
2. (Other, more important priorities for management time, resources.)
3. (Don't have skills on staff to undertake energy management activities.)
4. (Organization out sources facility management)
5. (No cash available for improvements)
6. (No financing available for improvements)
7. (Organization is too small)
00. (OTHER_____)
88. (DK)
99. (REF)

D8. Does your company have energy cost reduction goals?

1. Yes
2. No [→GO TO D10](#)
88. (DK) [→GO TO D10](#)
99. (REF) [→GO TO D10](#)

D9. What are those goals?

ENTER VERBATIM _____
[88 = DK, 99 = REFUSED]

D10. Does your organization engage consultants or specialty contractors periodically to assist in identifying and capturing energy savings?

1. Yes
2. No [→GO TO E1](#)
88. (DK) [→GO TO E1](#)
99. (REF) [→GO TO E1](#)

D11. What kind of firm or firms provide these services to you?

[DON'T READ] ACCEPT MULTIPLES

1. (Equipment manufacturers)
2. (Equipment dealers)
3. (Equipment installation contractors)
4. (Consulting engineers)
5. (Trade or industry associations)
6. (Government or utility energy efficiency programs)
00. (OTHER_____)
88. (DK)
99. (REF)

E. REPLACEMENT PRACTICES

E1. Which of the following best describes your company's policy regarding the purchase of energy using equipment? [READ ENTIRE LIST]

1. Our company has no policy about the purchase of energy using equipment, formal or informal
2. We have an informal policy to consider energy efficiency when we make purchases
3. We have a formal, written policy to consider energy efficient equipment when we make purchases, or
4. We have a formal, written policy that requires the purchase of energy efficient equipment that meet specific criteria
00. (OTHER Please describe _____)
88. (DK)
99. (REF)

IF E1 = 1, 00, 88, 99 →GO TO F0

IF E1 = 2 →GO TO E4

IF E1 = 3, 4 →GO TO E2

E2. Approximately when was that policy established?

0. Within the past year
1. 1 year ago
2. 2 to 3 years ago
3. 4 to 5 years ago
4. More than 5 years ago
88. (DK)
99. (REF)

E3. Which of the following kinds of equipment do these policies cover?
[READ LIST. ACCEPT MULTIPLES]

1. Lighting
2. HVAC
3. Motors
00. (OTHER Please describe _____)
88. (DK)
99. (REF)

F. MARKET BARRIERS QUESTIONS

F0. I'm going to read a brief series of statements. Please tell me how well each statement describes your beliefs about energy efficient investments or practices.

We'll use a scale of 1 to 5, where 1 means you DON'T AGREE AT ALL with the statement, and 5 means you AGREE COMPLETELY with the statement.

[RANDOMIZE. 77 = DOES NOT APPLY TO ORGANIZATION 88 = DK 99 = REF]

- F1. My organization has already taken all cost-effective actions to reduce energy costs in this facility.
- F2. There are practical benefits, apart from saving money, that come with energy efficient equipment.
- F3. The potential operating cost savings associated with energy efficient equipment do *not* justify their added purchase costs.
- F4. Budget constraints prevent us from making investments in energy efficient equipment
- F5. When considering a new energy efficiency investment, I am concerned that the actual bill savings will be less than what was estimated

G. ENERGY EFFICIENCY INVESTMENTS

G0. Now I'd like to ask a few questions about the way your organization plans improvements to your facilities and your energy using equipment.

G1. In the past three years, has your organization undertaken any construction or renovation projects involving expenditures of \$5,000 or more for a single project **at this location**?

- 1. Yes
- 2. No →GO TO H0
- 88. (DK) →GO TO H0
- 99. (REF) →GO TO H0

G2. How many such projects were undertaken at this facility over the past three years?

ENTER NUMBER _____

DK = 888 REF = 999

G3. Which of the following objectives did this project (these projects) address?

[READ LIST]

[1. YES 0. (otherwise)]

- A. Construction or expansion of floor space
- B. Reconfiguration of existing space
- C. Replacement of failing mechanical or electrical systems
- D. Health or safety compliance
- E. Increased staff or customer comfort
- F. Energy cost reduction
- G. Reduction of operating costs other than energy
- H. (OTHER_____)

G4. **[ASK ONLY IF G3F=1]** How many of these projects were undertaken with the primary objective of reducing energy costs in the facility?

ENTER NUMBER OF PROJECTS _____

DK = 888 REF = 999

G5. Did you typically apply financial analysis such as computing paybacks or return on investment when selecting which capital projects to implement?

- 1. Yes
- 2. No →GO TO G6
- 88. (DK) →GO TO G6
- 99. (REF) →GO TO G6

G5A. **[ASK IF G5=1]** What financial criteria and investment threshold do you typically apply?
OPEN_____

G6. Which of the following systems were changed as a part of this project (these projects)?

[ASK ONLY ITEMS MENTIONED IN B1-B6. ASK EVERYONE ABOUT LIGHTING]

[1. YES 2. NO 88.(DK) 99. (REF)]

- G6A. **[IF B1=1]** Space Heating
- G6B. **[IF B2=1]** Space Cooling or Ventilation
- G6C. **[IF B3=1]** Water Heating
- G6D. **[IF B4=1]** Cooking
- G6E. **[IF B5=1]** Refrigeration
- G6F. **[IF B6=1]** Chilled Water
- G6G. Lighting

G7. Which of the following groups or individuals helped decide which design approaches and equipment to use in the construction and renovation projects we have been discussing?

[READ LIST. ACCEPT MULTIPLES.]

G8. In your opinion, which one group or individual had the most influence on your organization's selection of design approaches and equipment? [ACCEPT ONE ONLY]

- 1. Your internal facilities staff
- 2. Your chief financial executive
- 3. Chief executive officer
- 4. Plant manager
- 5. Internal engineering staff
- 6. Consulting engineers and designers
- 7. Equipment installation contractor
- 8. Equipment supplier or manufacturer
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

G9. Did you work with consulting engineers or contractors to identify opportunities to reduce energy costs in the new equipment or facilities?

- 1. Yes → Please describe what happened _____.
- 2. No
- 88. (DK)
- 99. (REF)

TECHNOLOGY-SPECIFIC QUESTIONS

HVAC: ASK SECTION AA IF G6A = 1 or G6B=1

AA0. Did you use any of the following energy efficiency approaches in the project(s) that involved space heating, cooling, and ventilation systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- AA1. Computer modeling to design or size the system
- AA2. Testing or commissioning of the system after installation to ensure efficient operation
- AA3. Cooling equipment with High EER
- AA4. Enthalpy economizers for 'free cooling'
- AA5. Demand Control Ventilation
- AA6. Variable speed fans
- AA7. Variable speed pumps for chillers
- AA8. High efficiency boilers
- AA9. High efficiency furnaces
- AA10. Boiler reset and cutout
- AA11. Steam trap replacement
- AA12. Energy management systems
- AA13. Set back thermostats
- AA14. Any other energy efficiency approach? (Specify_____)

WATER HEATING: ASK SECTION CC IF G6C = 1

CC0. Did you use any of the following in the project(s) that involved domestic water heating systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- CC1. Heat recovery equipment
- CC2. Ganged boilers for variable loads
- CC3. Equipment with high Energy Factors
- CC4. Variable speed circulating pumps
- CC5. Any other? (Specify_____)

LIGHTING: ASK SECTION GG IF G6G = 1

- GG0. Did you use any of the following in the project(s) that involved lighting systems?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]
- GG1. T-8 fluorescent lamps
- GG2. Super or "high performance" T-8 fluorescent lamps
- GG3. T-5 fluorescent technology
- GG4. Compact Fluorescent Fixtures or Bulbs
- GG5. LED Exit Lights
- GG6. Occupancy controls in offices
- GG7. Daylighting controls
- GG8. Task-oriented light levels
- GG9. Any other (Specify_____)

COOKING: ASK SECTION DD IF G6D = 1

- DD0. Did you use any of the following in the project(s) that involved cooking equipment?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]
- DD1. Energy Star ventilation fans and related controls
- DD2. Energy Star refrigeration equipment
- DD3. Energy-efficient fryers
- DD4. Energy-efficient ovens
- DD5. Any other (Specify_____)

REFRIGERATION: ASK SECTION EE IF G6E = 1

- EE0. Did you use any of the following in the project(s) that involved refrigeration systems?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]
- EE1. Floating head pressure control for central systems
- EE2. Variable capacity compressors for central systems
- EE3. Efficient evaporator fan motors
- EE4. Cycling of anti-sweat heaters for cases
- EE5. Night covers for cases
- EE6. Doors on freezers and refrigerator cases
- EE7. Energy Star refrigerator or freezer reach-ins
- EE8. An energy management system
- EE9. High efficiency low temperature cases
- EE10. High efficiency medium temperature cases
- EE11. Replaced open cases with closed cases
- EE12. Low-heat/no-heat case doors
- EE13. Any other (Specify_____)

H. EFFICIENCY VERMONT PROGRAM PARTICIPATION**I just have a few last questions.**

H0 Have you heard of Efficiency Vermont?

1. Yes
2. No
3. Don't know

IF H0 ≠ 1 (NOT AWARE OF EVT)**→ GO TO H6****IF H0 =1 and G1 ≠1 (NO projects>\$5k)****→ GO TO H4b****IF H0 =1 and G1 =1 but No Project(s) in G6****→ GO TO H4b****IF H0 =1 and has a Project(s) in G6****→ Continue**

ASK H1 & H2 ONLY FOR ITEMS MENTIONED "yes" IN G6

IF G6A = yes → ASK H1A & H2A where TYPE = "Space Heating"

IF G6B = yes → ASK H1B & H2B where TYPE = "Space Cooling or Ventilation"

IF G6C = yes → ASK H1C & H2C where TYPE = "Water Heating"

IF G6D = yes → ASK H1D & H2D where TYPE = "Cooking"

IF G6E = yes → ASK H1E & H2E where TYPE = "Refrigeration"

IF G6G = yes → ASK H1G & H2G where TYPE = "Lighting"

H1#. Did your organization use Efficiency Vermont services or financial incentives for the project involving <TYPE>?

1. YES 2. NO 88.(DK) 99. (REF)

H2#. **[ASK IF H1#≠YES]** Which services or program offerings did you use?**[ACCEPT MULTIPLES]**

1. Financial Incentives (rebates) (SPECIFY/DESCRIBE_____)
2. Technical Assistance or Consultation (SPECIFY/DESCRIBE_____)
00. Or something else? (SPECIFY/DESCRIBE_____)
88. (DK)
99. (REF)

H3a. **[ASK IF any EVT participation in H1]** How much influence did Efficiency Vermont's services or incentives have on your organization's decision to implement the energy efficiency measures?

Use a scale of 1 to 5, where 1 means 'very little influence' and 5 means 'a great deal of influence.' [CODE 1 TO 5; 88 = DK; 99 = REF]

H3aa. Can you explain why you gave that rating? OPEN_____

- H3b. **[ASK IF no EVT participation in H1 (not “yes”)]** What are the main reasons why your company didn’t participate in Efficiency Vermont’s programs when it was carrying out these projects? OPEN_____ RECODE VERBATIM THEN CODE LATER. ACCEPT MULTIPLES. DO NOT SHOW CODES
1. (Did not know about Efficiency Vermont at the time)
 2. (Not enough time to find out about the program)
 3. (Too much paperwork)
 4. (Rebate too low to justify getting involved)
 00. (OTHER_____)
 88. (DK)
 99. (REF)
- H4a. Has your organization used services, information, received financial incentives from Efficiency Vermont in situations other than the projects we have already discussed?
1. YES 2. NO 88.(DK) 99. (REF)
- H4b. **[ASK IF D1=1 and (G1 ≠ 1 or all G6 ≠ 1)]** Has your organization ever used services, information, or received financial incentives from Efficiency Vermont?
1. YES 2. NO 88.(DK) 99. (REF)
- H5. **[ASK IF H4A OR H4B =YES]** Which services or program offerings did you use?
[ACCEPT MULTIPLES]
4. Financial Incentives (rebates) (SPECIFY/DESCRIBE_____)
 5. Technical Assistance or Consultation (SPECIFY/DESCRIBE_____)
 00. Or something else? (SPECIFY/DESCRIBE_____)
 88. (DK)
 99. (REF)
- H6. Over the past three years, has the importance of energy management in your organization increased, decreased, or stayed about the same?
1. Increased **IF D1 ≠1 → GO TO H8**
 2. Decreased **IF D1 ≠1 → GO TO H8**
 3. Stayed about the same **→ GO TO H8**
 88. (DK) **→ GO TO H8**
 99. (REF) **→ GO TO H8**
- H7. **[ASK IF H6 =1 or 2 and D1=1]** On a scale of 1 to 5, where 1 is ‘not at all important’ and 5 is ‘very important’, how important was your organization’s experience with Efficiency Vermont in bringing about that change?
[CODE 1 TO 5; 88 = DK; 99 = REF.]

H8. Over the past three years, has your organization's effectiveness in energy management increased, decreased, or stayed about the same?

- | | |
|--------------------------|-------------------|
| 1. Increased | IF D1 ≠ 1 → THANK |
| 2. Decreased | IF D1 ≠ 1 → THANK |
| 3. Stayed about the same | → THANK |
| 88. (DK) | → THANK |
| 99. (REF) | → THANK |

H9. **[ASK IF H8 =1 or 2 and D1=1]** On a scale of 1 to 5, where 1 is 'not at all important' and 5 is 'very important', how important was your organization's experience with Efficiency Vermont in bringing about that change?
[CODE 1 TO 5; 88 = DK; 99 = REF.]

THANK YOU VERY MUCH FOR YOUR PARTICIPATION IN THIS SURVEY.

EVT INDUSTRIAL END-USER SURVEY

DRAFT 4/7

Business Name:	Address:
City	ZIP
SIC Code	Sample Stratum
Telephone Number	Contact Name

INTRODUCTION

INTRO1: Hello, this is _____calling from Research America on behalf of the Vermont Department of Public Service. May I speak with the person at this location who is most knowledgeable about decisions affecting your energy using equipment or who makes most decisions on large equipment purchases?

WHEN CORRECT RESPONDENT COMES TO THE PHONE → **INTRO2**

INTRO2: Hello, this is _____calling from Research America on behalf of the Vermont Department of Public Service. I'd like to confirm, are you the person responsible for making energy-related decisions at your firm at this location?

IF YES→ "Great!" [GO TO S0]

**If timing is inconvenient, record name and schedule a call back.*

IF NO→ Ask to speak to the appropriate person and repeat INTRO2.*

**If appropriate respondent is not available record name and schedule a call back.*

[WE WANT THE INDIVIDUAL MOST KNOWLEDGEABLE AT THIS LOCATION, EVEN IF BUILDING IS OWNED BY OFF-SITE MANAGER. DO NOT RECORD INFORMATION FOR INDIVIDUAL AT SOME OTHER BUILDING OR LOCATION.]

[IF NEEDED] This is a fact-finding survey only – we are NOT interested in selling anything, and responses will not be connected with your firm in any way.

[IF NEEDED] The Department of Public Service is seeking to better understand how businesses think about energy in order to improve energy saving programs for commercial facilities.

[IF NEEDED] This survey usually takes about 15 minutes, depending on your responses.

S0. The Department of Public Service is conducting this important research among Vermont industrial facilities in order to help shape its energy efficiency programs to lower your energy costs.

S1. I'd first like to confirm that this is <Business Name>. Is that correct?

- | | |
|----------|---------------------------------|
| 1. Yes | → GO TO S3 |
| 2. No | → GO TO S2 |
| 8. (DK) | →Thank & Terminate |
| 9. (REF) | →Thank & Terminate ¹ |

¹ Responses in parentheses are not read aloud.

S2. Is this <2nd D&B Business Name>?

- 1. Yes
- 2. No →Thank & Terminate
- 8. (DK) →Thank & Terminate
- 9. (REF) →Thank & Terminate

S3. [Ask if # employees<5] I'd also like to confirm that your establishment is in a commercial, industrial, or institutional building and NOT in a home. Is that correct?

- 1. Yes, it is in a building
- 2. No, it is in a home →Thank & Terminate
- 88. (DK) →Thank & Terminate
- 99. (REF) →Thank & Terminate

A. ESTABLISHMENT CHARACTERISTICS

A0. I'd like to start by asking you a few questions about your organization and facility.

A1. Which best describes the principal activity conducted at this location? Is it ...

- 1. Manufacturing,
- 2. Other industrial processes,
- 3. Office or administrative activities, or →Thank & Terminate
- 00. Something else (SPECIFY _____) →If not industrial, Thank & Terminate
- 88. (DK)
- 99. (REF)

[IF NEEDED: "This may not be the main activity of your company but should be the main activity that occurs at this location."]

A2. What is your job title or role? [DO NOT READ]

- 1. (Owner / President / CEO)
- 2. (Manager or Director of Facilities / Maintenance / Buildings & Grounds)
- 3. (Energy Manager or Director)
- 4. (OTHER Manager or Director SPECIFY _____)
- 5. (CFO / Controller / Treasurer)
- 6. (OTHER Financial / Administrative position)
- 7. (Principal or Superintendent)
- 8. (Vice President)
- 00. (OTHER _____)
- 88. (DK)
- 99. (REF)

A3. How many employees work at this location?

ENTER NUMBER _____

DK = 88,888

REF = 99,999

- A4. What is the total enclosed square footage of the portion of the facility that you occupy at this location? Your best estimate will be fine.

ENTER NUMBER _____

DK = 88,888,888 REF = 99,999,999

- A5. Does your organization.....

1. Own the space that it occupies in this facility
 2. Lease the space that it occupies
 3. Own a part and lease the remainder
88. (DK)
99. (REF)

- A9. Which of the following fuels or power sources do you use in this facility? Do you use...
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF)]

- A9b. Natural Gas
A9c. Coal
A9d. Waste Materials
A9e. Fuel Oil
A9f. Propane/LPG, Bottled Gas
A9g. Kerosene
A9h. Purchased Steam
A9i. Purchased Hot or Chilled Water
A9j. Or anything else (OTHER_____)

- A6. **[ASK IF A5=2 OR 3]** Are any of your energy costs included in your normal lease payment?

1. Yes
 2. No
8. (DK)
9. (REF)

A10. **[ASK IF A6=1]** Which of the energy costs are covered by your normal lease payments?
[DO NOT READ. 1. YES 0. (otherwise)]

A10a. Electricity

A10b. Other Fuels

A7. What is your best estimate of your average monthly total energy bills for the following fuels paid by your firm for this location?

[ASK FOR ALL FUELS MENTIONED IN A9, EXCEPT FOR THOSE MENTIONED IN A10]

ENTER \$ PER MONTH _____

DK = 8,888,888 REF = 9,999,999

A7a. Electricity

A7b. Other Fuels

A8. Is this facility... [READ LIST]

1. Your firm's only location
 2. A branch location of a firm based in Vermont
 3. A branch location of a firm based OUTSIDE Vermont
 4. A franchise location of a firm based in Vermont
 5. A franchise location of a firm based OUTSIDE Vermont
 6. Or, the headquarters of a firm with multiple locations
00. (OTHER_____)
88. (DK)
99. (REF)

B. END USES and MAINTENANCE

B0. Which of the following kinds of equipment are in this facility? Do you have...

[1. YES 2. NO 88.(DK) 99. (REF)]

- B1. Compressed Air
- B2. Pumping Systems
- B3. Fan or blower systems
- B4. Plant Steam Systems
- B5. Process Heat Systems
- B6. Refrigeration Systems
- B7. Air Conditioning
- B8. Custom manufacturing or industrial process systems

B9 **[ASK IF B1=1]** How many compressors are used to power your compressed air system?

ENTER NUMBER OF COMPRESSORS _____ [DK = 88 REF=99]

B10 **[ASK IF B1=1]** What is (are) the horsepower rating(s) of the(se) compressor(s)? [DK = 88 REF=99]

- B10_1 HP of Compressor 1_____
- B10_2 HP of Compressor 2_____
- B10_3 HP of Compressor 3_____
- B10_4 HP of Compressor 4_____
- B10_5 HP of Compressor 5_____

B11 **[ASK IF B1=1]** Do your compressed air systems power mechanical applications throughout the plant, process applications such as mixing or aerating, or both types of applications?

- 1. Plant mechanical operations
- 2. Process operations
- 3. Both
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

ASK NEXT QUESTIONS IN SECTION B ONLY FOR ITEMS MENTION IN B1 THROUGH B8

IF B1=yes →ASK B1A & B1B where TYPE ="Compressed Air"

IF B2=yes →ASK B2A & B2B where TYPE ="Pumping Systems"

IF B3=yes →ASK B3A & B3B where TYPE ="Fan or blower systems"

IF B4=yes →ASK B4A & B4B where TYPE ="Plant Steam Systems"

IF B5=yes →ASK B5A & B5B where TYPE ="Process Heat Systems"

IF B6=yes →ASK B6A & B6B where TYPE ="Refrigeration Systems"

IF B7=yes →ASK B7A & B7B where TYPE ="Air Conditioning"

IF B8=yes →ASK B8A & B8B where TYPE ="Custom manufacturing or industrial process systems"

B#A Do you have a service contract for the <TYPE> equipment at this facility?

- 1. YES
- 2. NO
- 88. (DK)
- 99. (REF)

B#B **[ASK IF B#A=1]** Does the service contract for the <TYPE> equipment at this facility cover periodic assessment and maintenance of the system's energy efficiency?

- 1. Yes
- 2. No
- 88. (DK)
- 99. (REF)

C. LIGHTING

C0. Next, I'd like to ask you some questions about the lighting at this location.

C1. Roughly speaking, what percentage of your indoor floor space is lit by. . . **ENTER PERCENTAGE, 888 FOR DK; 999 FOR REF 0 FOR NONE**

- a. Fluorescent tubes
- b. Regular incandescent bulbs
- c. Compact fluorescent bulbs [READ DESCRIPTION IF NEEDED]²
- d. High intensity discharge lighting such as metal halide, sodium or mercury lamps

C2. **[ASK ONLY IF C1a > 0]** Are most of the fluorescent tubes. . .

- 1. T-12 lamps with magnetic ballasts – These standard type lamps are 1 ½" in diameter and are usually 34 watts, or
- 2. T-8 lamps with electronic ballasts – these newer type lamps are 1" in diameter and are usually 32 watts.
- 88. (DK)
- 99. (REF)

C3. Approximately what percentage of the exit lamps in this facility use LEDs (Light Emitting Diodes)? [READ DESCRIPTION IF NEEDED]³
[ENTER PERCENT. 888 FOR DK; 999 FOR REF 0 FOR NONE]

² "Compact fluorescent light bulbs are small fluorescent bulbs that fit in regular light bulb sockets. Compact fluorescent bulbs look different than standard bulbs. They are often made out of thin tubes of glass bent into loops."

³ "An LED looks like flat panel Exit sign with no bulbs."

D. ENERGY MANAGEMENT ORGANIZATION AND PRACTICES

D0. The next set of questions focuses on your company's energy management activities.

D1. First, have you heard of Efficiency Vermont?

- 1. Yes
- 2. No
- 88. (DK)
- 99. (REF)

D2. Is there a person, group, or department in your organization that is assigned by top management to manage energy use and costs?

- 1. Yes, one person
- 2. Yes, a group
- 3. Yes, a department
- 4. No **→GO TO D6**
- 88. (DK) **→GO TO D6**
- 99. (REF) **→GO TO D6**

D3. What is the title of that <D2A: PERSON, GROUP, OR DEPARTMENT>?

ENTER VERBATIM _____
[88 = DK, 99 = REFUSED]

D4. **[ASK ONLY IF A8 ≠1]** Is this <D2A: PERSON, GROUP, OR DEPARTMENT> located at your facility, corporate headquarters, or another location?

- 1. Respondent's facility
- 2. Corporate headquarters
- 3. Another facility
- 88. (DK)
- 99. (REF)

D5. **[ASK ONLY IF A8 ≠1]** Who does this <D2A: PERSON, GROUP, OR DEPARTMENT> report to? [PROMPT IF NECESSARY]

- 1. Plant or General Manager
- 2. Facilities Manager
- 3. Building or Plant Engineer
- 4. Office Manager
- 5. Treasurer/VP Finance
- 6. Chief Operating Officer
- 7. Central Corporate Facilities Manager
- 8. President/ CEO
- 9. Owner/Proprietor
- 00. (OTHER_____)

- 88. (DK)
- 99. (REF)

D6. Are there persons in your organization who have been assigned responsibility for the following activities?

[1. YES 2. NO 88.(DK) 99. (REF)]

- A. Tracking energy use and costs over time for the facility as a whole
- B. Monitoring energy use for key building or production systems
- C. Identifying facility improvements to reduce energy use and costs on an ongoing basis

**IF NONE OF THE ITEMS IN D6 ARE YES AND IF D2 ≠YES AND THEN ASK D7
→ELSE GO TO D8**

D7m1. What do you think is the main reason why your company has not assigned staff to energy management activities? [DO NOT READ. RECORD ONE RESPONSE]

D7m2 Are there other reasons? [DO NOT READ. ACCEPT MULTIPLE RESPONSES]

- 1. (Energy costs are not large enough to justify spending management or staff time.)
- 2. (Other, more important priorities for management time, resources.)
- 3. (Don't have skills on staff to undertake energy management activities.)
- 4. (Organization out sources facility management)
- 5. (No cash available for improvements)
- 6. (No financing available for improvements)
- 7. (Organization is too small)
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

D8. Does your company have energy cost reduction goals?

- 1. Yes
- 2. No **→GO TO D10**
- 88. (DK) **→GO TO D10**
- 99. (REF) **→GO TO D10**

D9. What are those goals?

ENTER VERBATIM _____
[88 = DK, 99 = REFUSED]

D10. Does your organization engage consultants or specialty contractors periodically to assist in identifying and capturing energy savings?

- 1. Yes
- 2. No →GO TO E1
- 88. (DK) →GO TO E1
- 99. (REF) →GO TO E1

D11. What kind of firm or firms provide these services to you?

[DON'T READ] ACCEPT MULTIPLES

- 1. (Equipment manufacturers)
- 2. (Equipment dealers)
- 3. (Equipment installation contractors)
- 4. (Consulting engineers)
- 5. (Trade or industry associations)
- 6. (Government or utility energy efficiency programs)
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

E. REPLACEMENT PRACTICES

E1. Which of the following best describes your company's policy regarding the purchase of energy using equipment?

- 1. Our company has no policy about the purchase of energy using equipment, formal or informal
- 2. We have an informal policy to consider energy efficiency when we make purchases
- 3. We have a formal, written policy to consider energy efficient equipment when we make purchases, or
- 4. We have a formal, written policy that requires the purchase of energy efficient equipment that meet specific criteria
- 00. (OTHER Please describe _____)
- 88. (DK)
- 99. (REF)

[IF E1 = 2, 3, OR 4 ASK E2 ELSE SKIP TO F0]

E2. Which of the following kinds of equipment do these policies cover?

[READ LIST. ACCEPT MULTIPLES]

1. Compressed Air
2. Pumping Systems
3. Fan or blower systems
4. Plant Steam Systems
5. Process Heat Systems
6. Refrigeration Systems
7. [BLANK]
8. Custom manufacturing or industrial process systems
9. Lighting
10. Space heating and cooling
11. Motors
00. (OTHER Please describe _____)
88. (DK)
99. (REF)

F. MARKET BARRIERS

F0. I'm going to read a brief series of statements. Please tell me how well each statement describes your beliefs about energy efficient investments or practices.

We'll use a scale of 1 to 5, where 1 means you DON'T AGREE AT ALL with the statement, and 5 means you AGREE COMPLETELY with the statement.

[RANDOMIZE. 77 = DOES NOT APPLY TO ORGANIZATION 88 = DK 99 = REF]

- F1. My organization has already taken all cost-effective actions to reduce energy costs in this facility.
- F2. There are practical benefits, apart from saving money, that come with energy efficient equipment.
- F3. The potential operating cost savings associated with energy efficient equipment do *not* justify their added purchase costs.
- F4. Budget constraints prevent us from making investments in energy efficient equipment
- F5. When considering a new energy efficiency investment, I am concerned that the actual bill savings will be less than what was estimated

G. ENERGY EFFICIENCY INVESTMENTS

G0. Now I'd like to ask a few questions about the way your organization plans improvements to your facilities and your energy using equipment.

G1. In the past three years, has your organization undertaken any construction or renovation projects involving expenditures of \$10,000 or more for a single project **at this location**?

- 1. Yes
- 2. No →GO TO H0
- 88. (DK) →GO TO H0
- 99. (REF) →GO TO H0

G2. How many such projects were undertaken at this facility over the past three years?

ENTER NUMBER _____

DK = 888 REF = 999

G3. Which of the following objectives did this project (these projects) address?

[READ LIST]

[1. YES 0. (otherwise)]

- A. Construction or expansion of floor space
- B. Reconfiguration of existing space
- C. Replacement of failing mechanical or electrical systems
- D. Health or safety compliance
- E. Change in production processes or products produced
- F. Change in the Volume of output
- G. Energy cost reduction
- H. Reduction of operating costs other than energy
- I. (OTHER_____)

G4. **[ASK ONLY IF G3G=1]** How many of these projects were undertaken with the primary objective of reducing energy costs in the facility?

ENTER NUMBER OF PROJECTS _____

DK = 888 REF = 999

G5. Did you typically apply financial analysis such as computing paybacks or return on investment when selecting which capital projects to implement?

- 1. Yes
- 2. No
- 88. (DK)
- 99. (REF)

G6. Which of the following systems were changed as a part of this project (these projects)?

[ASK ONLY ITEMS MENTIONED IN B1-B6. ASSUME EVERYONE HAS LIGHTING]

[1. YES 2. NO 88.(DK) 99. (REF)]

- G6A. [IF B1=1] Compressed Air
- G6B. [IF B2=1] Pumping Systems
- G6C. [IF B3=1] Fan or blower systems
- G6D. [IF B4=1] Plant Steam Systems
- G6E. [IF B5=1] Process Heat Systems
- G6F. [IF B6=1] Refrigeration Systems
- G6G. [IF B7=1] Air Conditioning
- G6H. [IF B8=1] Custom manufacturing or industrial process systems
- G6I. Lighting

G7. Which of the following groups or individuals helped decide which design approaches and equipment to use in the construction and renovation projects we have been discussing?

[READ LIST. ACCEPT MULTIPLES.]

G8. In your opinion, which one group or individual had the most influence on your organization's selection of design approaches and equipment? [ACCEPT ONE ONLY]

- 1. Your internal facilities staff
- 2. Your chief financial executive
- 3. Chief executive officer
- 4. Plant manager
- 5. Internal engineering staff
- 6. Consulting engineers and designers
- 7. Equipment installation contractor
- 8. Equipment supplier or manufacturer
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

G9. Did you work with consulting engineers or contractors to identify opportunities to reduce energy costs in the new equipment or facilities?

- 1. Yes
- 2. No
- 88. (DK)
- 99. (REF)

TECHNOLOGY-SPECIFIC QUESTIONSCOMPRESSED AIR: ASK SECTION AA IF G6A = 1

AA0. Did you use any of the following strategies to reduce energy use in your compressed air system projects?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- AA1. Installed higher efficiency compressors
- AA2. Use parallel compressors to meet variations in load
- AA3. Improved auxiliary equipment such as air dryers and coolers
- AA4. Improved piping and distribution systems
- AA5. Improved compressor controls
- AA6. Reduced overall system horsepower
- AA7. Reduced leakage
- AA8. Eliminated unnecessary compressed air uses
- AA9. Any other energy efficiency approach? (Specify_____)

PUMPING SYSTEMS: ASK SECTION BB IF G6B = 1

BB0. Did you use any of the following energy efficiency approaches in the project(s) that involved pumping systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- BB1. Substitute speed controls for throttling
- BB2. Use parallel pumps to respond to variations in load
- BB3. Reduced pump size to fit load
- BB4. Increase piping diameter to reduce friction
- BB5. Use variable speed drives to control pump motors
- BB6. Any other? (Specify_____)

FAN OR BLOWER SYSTEMS: ASK SECTION BB IF G6C = 1

CC0. Did you use any of the following approaches in the project(s) that involved fan or blower systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- CC1. Installed variable speed drives
- CC2. Retrofit inlet vanes
- CC3. Replaced components with large pressure drops
- CC4. Any other? (Specify_____)

STEAM SYSTEMS: ASK SECTION DD IF G6D = 1

DD0. Did you use any of the following in the project(s) that involved your steam system?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- DD1. Install turbulators in boiler tubes
- DD2. Install automatic blowdown control
- DD3. Install heat recovery equipment
- DD4. Install high efficiency burners
- DD5. Replace boiler
- DD6. Boiler reset and cutout
- DD7. Replace steam traps
- DD8. Any other (Specify_____)

PROCESS HEAT SYSTEMS: ASK SECTION EE IF G6E = 1

EE0. Did you use any of the following in the project(s) that involved process heat systems?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- EE1. Improved fuel mix control
- EE2. Install variable speed control on draft fans
- EE3. Installed systems to preheat combustion air
- EE4. Install advanced burners & controls
- EE5. Improve insulation for furnace walls, piping, ductwork
- EE6. Install heat recovery equipment
- EE7. Any other (Specify_____)

REFRIGERATION: ASK SECTION FF IF G6F = 1

FF0. Did you use any of the following in the project(s) that involved refrigeration systems?
[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

- FF1. Floating head pressure control for central systems
- FF2. Variable capacity compressors for central systems
- FF3. Load sequencing of multiple compressors
- FF4. Efficient evaporator fan motors
- FF5. Any other (Specify_____)

LIGHTING: ASK SECTION II IF G6I = 1

II0. Did you use any of the following in the project(s) that involved lighting systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

II1. T-8 fluorescent lamps

II2. Super T-8 fluorescent lamps

II3. Substitution of fluorescent for HID fixtures

II4. LED Exit Lights

II5. Improved lighting controls

II6. Occupancy Sensors

II7. Daylighting

II8. Task-oriented light levels

II9. Any other (Specify_____)

AIR CONDITIONING: ASK SECTION GG IF G6G = 1

GG0. Did you use any of the following in the project(s) that involved air conditioning systems?

[READ LIST. 1. YES 2. NO 88.(DK) 99. (REF) 77. (Not applicable)]

GG1. Computer modeling to design or size the system

GG2. Testing or commissioning of the system after installation to ensure efficient operation

GG3. Cooling equipment with high EER of 13 or higher

GG4. Enthalpy controllers for 'free cooling'

GG5. Variable speed fans

GG6. Energy management systems

GG7. Set back thermostats

GG8. Any other (Specify_____)

H. EFFICIENCY VERMONT PROGRAM PARTICIPATION

H0. I just have a few last questions.

IF D1 ≠ 1 (NOT AWARE OF EVT)

→ GO TO H6

IF D1 =1 and G1 ≠1 (NO projects>\$10k)

→ GO TO H4b

IF D1 =1 and G1 =1 but No Project(s) in G6

→ GO TO H4b

IF D1 =1 and has a Project(s) in G6

→ Continue

ASK ONLY FOR ITEMS MENTIONED IN G6

IF G6A = yes → ASK H1A & H2A where TYPE = "Compressed Air"

IF G6B = yes → ASK H1B & H2B where TYPE = "Pumping Systems"

IF G6C = yes → ASK H1C & H2C where TYPE = "Fan or Blower Systems"

IF G6D = yes → ASK H1D & H2D where TYPE = "Plant Steam Systems"

IF G6E = yes → ASK H1E & H2E where TYPE = "Process Heat Systems"

IF G6F = yes → ASK H1F & H2F where TYPE = "Refrigeration Systems"

IF G6G = yes → ASK H1G & H2G where TYPE = "Air Conditioning System"

**IF G6H = yes → ASK H1H & H2H where TYPE = "Custom manufacturing or
industrial process systems"**

IF G6I = yes → ASK H1I & H2I where TYPE = "Lighting"

H1#. Did your organization use Efficiency Vermont financial incentives or services for the project involving <TYPE>?

1. YES 2. NO 88.(DK) 99. (REF)

H2#. [ASK IF H1#=YES] Which services or program offerings did you use?

1. Financial Incentives (rebates)

2. Technical Assistance

00. Or something else? (SPECIFY_____)

88. (DK)

99. (REF)

H3a. [ASK IF any EVT participation in H1] How likely is it that your organization would have installed the energy efficiency measures it did without the assistance received from the Efficiency Vermont programs?

Use a scale of 1 to 5, where 1 means 'very unlikely' and 5 means 'very likely'

[CODE 1 TO 5; 88 = DK; 99 = REF.]

H3b. **[ASK IF no EVT participation in H1]** Why didn't your company participate in Efficiency Vermont's programs when it was carrying out these projects?
[DO NOT READ. ACCEPT MULTIPLES]

- 1. (Did not know about Efficiency Vermont at the time)
- 2. (Not enough time to find out about the program)
- 3. (Too much paperwork)
- 4. (Rebate too low to justify getting involved)
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

H4a. Has your organization used services or information from Efficiency Vermont in situations other than the projects we have already discussed?
1. YES 2. NO 88.(DK) 99. (REF)

H4b. **[ASK IF D1=1 and (G1 ≠ 1 or all G6 ≠ 1)]** Has your organization ever used services or information from Efficiency Vermont?
1. YES 2. NO 88.(DK) 99. (REF)

H5. **[ASK IF H4A OR H4B =YES]** Which services or program offerings did you use?
1. Financial Incentives (rebates)
2. Technical Assistance or Consultation
3. Training
00. Or something else? (SPECIFY_____)
88. (DK)
99. (REF)

H6. Over the past three years, has the importance of energy management in your organization increased, decreased, or stayed about the same?

1. Increased	IF D1 ≠1 → GO TO H8
2. Decreased	IF D1 ≠1 → GO TO H8
3. Stayed about the same	→ GO TO H8
88. (DK)	→ GO TO H8
99. (REF)	→ GO TO H8

H7. **[ASK IF H6 =1 or 2 and D1=1]** On a scale of 1 to 5, where 1 is 'not at all important' and 5 is 'very important', how important was your organization's experience with Efficiency Vermont in bringing about that change?
[CODE 1 TO 5; 88 = DK; 99 = REF.]

H8. Over the past three years, would you say that your organization's effectiveness in energy management increased, decreased, or stayed about the same?

- | | |
|--------------------------|-------------------|
| 1. Increased | IF D1 ≠ 1 → THANK |
| 2. Decreased | IF D1 ≠ 1 → THANK |
| 3. Stayed about the same | → THANK |
| 88. (DK) | → THANK |
| 99. (REF) | → THANK |

H9. **[ASK IF H8 =1 or 2 and D1=1]** On a scale of 1 to 5, where 1 is 'not at all important' and 5 is 'very important', how important was your organization's experience with Efficiency Vermont in bringing about that change?

[CODE 1 TO 5; 88 = DK; 99 = REF.]

THANK YOU VERY MUCH FOR YOUR PARTICIPATION IN THIS SURVEY.

NEW CONSTRUCTION Interview Guide
DRAFT 4.22.05

Interview Guide Objectives:
- Gather detailed information on the effect of program services and incentives on equipment choices (assessment of free ridership & spillover).
- Assess role of suppliers, designers, and contractors in equipment selection.
- Assess customer knowledge of benefits of efficient equipment & installation.
- Gather customer assessment of program delivery quality.
- Assess motivations in participation.

<i>Task 2.7 In-Depth Interviews: NC Program Participants</i>
This will be interviews of those commercial customers who have used EVT services and/or incentives. A series of open-ended questions will be posed to elicit responses relating to the baseline indicators, their choice and use of energy efficient equipment, their choice and use of suppliers, the extent of their usage and satisfaction with EVT services, their relationship and role with suppliers, designers, and contractors, and what additional energy efficient measures have they installed beyond what was provided or supported through EVT (ex. the measure of spillover effect).

Initial Contact - Recruiting Script

[IF NO CONTACT LISTED > Introduction for gatekeeper:]

This is [Name] of RLW Analytics, and I'm calling on behalf of the Vermont Department of Public Service. The DPS is conducting an evaluation to look closely on what is happening in commercial new construction in Vermont, and how they can best support these businesses reduce their costs through energy efficiency.

In particular, Efficiency Vermont had given us the name of your firm as a past program participant. I was looking to schedule a brief telephone interview with [NAME OF CONTACT] to gather some information about how decision-making worked with the building project, and EVT's role with it. This information will help improve efficiency programs to best support other Vermont businesses in the future. This is not a sales or telemarketing call - we're not asking you or your firm to do something or buy anything.

[IF CONTACT NAME IS NOT LISTED > Ask to speak with a financial decision maker – someone authorized to accept or reject changes in the facility. Verify the listed contact has that authority.]

[IF CONTACT IS REACHED – REPEAT INTRODUCTION]

When would it be convenient to call you with these questions?

1. Yes, Schedule: Date _____ and range of time: From _____ To _____
Date: _____ Time: _____
2. Yes, Now → go to Interview Guide
3. Not sure if legitimate, wants to confirm → _____
4. Needs other input for joint decision (Schedule call-back)

Thank you. I would like to verify that I have the following information correct [READ CONTACT INFO; CORRECT AS NEEDED]:

ENTER CORRECT NAME: _____

Do you have another or better direct phone number that we should use if this phone line is unattended?

ENTER PHONE NUMBER (AREA CODE & NUMBER): _____

Interviewer Introduction

> Repeat/paraphrase previous introduction

Your answers are fully confidential, and are not shared at all with the DPS, the State of Vermont, or any other organizations. Our analysis ties all individual answers together to produce our report without reference to individual respondents. Anonymous quotes quantify concepts and points. For example, "ten respondents answered X" or "one respondent pointed out Z."

GENERAL SECTION

FIRMNAME _____

RESPONDENTNAME _____

TITLE _____

RECORD MEASURES INSTALLED FROM KITT DATABASE IN ITEMS SHOWN PRIOR TO BEGINNING THE INTERVIEW.

We would first like to get a brief snapshot of how the decision making came about for this new site.

1. What is the facility/building type?_____ [Retail, Office, School, etc.]
2. Was this project a new structure or an expansion of an existing facility?
3. Square footage of the new construction area: _____ SF (estimated is acceptable)
4. Typical weekly operating hours _____
- 4a. Does your organization occupy other facilities in Vermont? Y/N.
5. Are final new construction decisions made onsite, or by corporate offices outside Vermont? [PROBE FOR DESCRIPTION OF THE TYPICAL DECISION-MAKING PATH]
6. Which individuals or departments in your organization participated in making decisions concerning the overall design of the project – configuration of the building and interior space? (LIST ALL THAT APPLY)
- _____
- _____
7. Which designers or other building professionals were involved in the overall design of the project?

a. Architect located in Vermont	g.Equipment Suppliers
b. Architect located outside of Vermont	h.Efficiency Vermont
c. Consulting mechanical engineers	i.Utility company reps
d. Consulting electrical engineers	l.Other (specify)
e. Mechanical contractors	
f. Electrical contractors	


8. Which of the above were the most influential in the decision making process?


9. Who was responsible for the final approval on design and systems?

BUILDING SHELL

This next section just covers how the elements in the building shell were determined.

10. Did you request any specific building shell design features be incorporated into the final design?
IF YES, what were they?

11.  Which of the following were considered in the building design?[MR3]

Building shell measure 	Considered in the design? 1 = Y, 2 = N	Did it remain in the final design? 1 = Y, 2 = N	IF NO > What happened that caused it to be dropped?
a. Low-e glazing			
b. Triple Glazing			
c. Optimizing thermal mass or building footprint			
d. Passive ventilation			
e. Shading devices			
f. Skylights or other advanced roofing designs			
g. Glazing design for daylighting to reduce lighting usage			

12. Who participated in selecting building shell measures for this project?


- a. In-house personnel
- b. Corporate offices outside Vermont
- c. Architect located in Vermont
- d. Architect located outside of Vermont
- e. Efficiency Vermont
- f. Other

13. Of the above, who had the most influence in shell design measures?

14. Was the building shell, as built, different from the final design? If YES > what were the changes and why were they made?

15. What role did EVT play in the design or specification of the building shell or basic configuration?
[PROBE FOR SPECIFICS OF INCENTIVES AND/OR TECHNICAL SUPPORT]

16. IF EVT WAS INVOLVED > How would the project have been different if no EVT support or incentives existed?

17. IF THE PROJECT IS A REMODEL OR REHABILITATION JOB, ASK: Did you apply any of the building shell measures that EVT supported to other parts of the facility? [PROBE FOR SPILLOVER  EFFECTS]

18. IF RESPONDENT OCCUPIES OTHER FACILITIES IN VERMONT, ASK: Did you apply any of the building shell measures used in this project to other facilities that your organization occupies in Vermont?

LIGHTING

Enter Lighting Measures Supported by EVT from KITT Database:

19. Which of the following were included in the lighting installation?

- a. Occupancy sensors
- b. Dimming ballasts with daylighting controls
- c. T8 lighting systems
- d. T5 lighting systems
- e. Substitution of compact fluorescent for HID lighting in high bay situations
- f. Compact fluorescent fixtures
- g. Energy management or DDC control of lighting operation

20. Who participated in selecting lighting system measures for this project?

- a. In-house personnel
- b. Corporate offices outside Vermont
- c. Architect located in Vermont
- d. Architect located outside of Vermont
- e. Consulting electrical engineers
- f. Electrical contractors
- g. Electrical suppliers
- h. Efficiency Vermont
- i. Utility company reps [including gas]
- j. Other (Specify) _____

21. Of the above, who had the most influence over the lighting system design and equipment selection?

22. What kind of interaction did you have with your electrical supplier about the final choice of lighting design or types?

23. Were the lighting systems as installed different from the final designs? If YES, then what were the changes and why were they made?
24. How do you feel about the performance and maintenance of the lighting system you have? [PROBE FOR POSITIVE OR NEGATIVE PERCEPTIONS ON COMFORT, MAINTENANCE, AND ADEQUACY]
25. What role did EVT play in the selection and installation of lighting systems? [PROBE FOR SPECIFICS OF INCENTIVES AND/OR TECHNICAL SUPPORT – SKIP NEXT QUESTION IF EVT NOT INVOLVED]
26. IF EVT WAS INVOLVED > How would the project have been different if no EVT support or incentives was available?
27. What additional energy efficient lighting was installed in this project outside of what EVT supported through incentives or technical analysis? [PROBE FOR SPILLOVER EFFECTS]
28. IF RESPONDENT OCCUPIES OTHER VERMONT FACILITIES, ASK: Have you used [MEASURES THAT RECEIVED INCENTIVES THROUGH THE PROGRAM] in any other construction projects in Vermont?
29. IF 28 = YES ASK: Did your experience with these measures in the project supported by EVT affect your decision to use them in other projects? IF YES: PROBE HOW SO.

HEATING AND COOLING

Enter Lighting Measures Supported by EVT from KITT Database:

30. What is the primary heating and cooling equipment you have in this new building? [As reasonably specific as respondent can tell]
31. Which of the following were included in the HVAC installation?
- a. Computer modeling to design or size the system
 - b. Testing or commissioning of the system after installation to ensure efficient operation
 - c. High efficiency packaged units or chillers
 - d. Enthalpy economizers for 'free cooling'
 - e. Demand Control Ventilation
 - f. Variable speed fans
 - g. Variable speed pumps for chillers
 - h. High efficiency boilers
 - i. High efficiency furnaces
 - j. Boiler reset and cutout
 - k. Energy management systems
 - l. Set back thermostats
 - m. Any other energy efficiency approach? (Specify_____)
32. Who participated in HVAC measures for this project?
- a. In-house personnel
 - b. Corporate offices outside Vermont
 - c. Architect located in Vermont
 - d. Architect located outside of Vermont
 - e. Consulting mechanical engineers
 - f. Mechanical contractors
 - g. Mechanical suppliers
 - h. Efficiency Vermont
 - i. Utility company reps [including gas]
 - j. Other (Specify) _____
33. Of the above, who had the most influence on the design of the HVAC system and equipment selection?

34. What kind of interaction did you have your HVAC equipment distributor in regard to system design or equipment selection?
35. Were the installed HVAC systems different from the final design? If YES, then what were the changes and why were they made?
36. How do you feel about the performance and maintenance of the HVAC system you have? [PROBE FOR POSITIVE OR NEGATIVE PERCEPTIONS ON COMFORT, MAINTENANCE, AND ADEQUACY]
37. What role did EVT play in the selection and installation of HVAC systems? [PROBE FOR SPECIFICS OF INCENTIVES AND/OR TECHNICAL SUPPORT]
38. IF EVT WAS INVOLVED > How would the project have been different if no EVT support or incentives were available?
39. What additional high efficiency HVAC features were installed in this facility outside of what EVT supported through incentives or technical analysis? [PROBE FOR SPILLOVER EFFECTS]
40. IF RESPONDENT OCCUPIES OTHER VERMONT FACILITIES, ASK: Have you used [MEASURES THAT RECEIVED INCENTIVES THROUGH THE PROGRAM] in any other construction projects in Vermont?
41. IF 28 = YES ASK: Did your experience with these measures in the project supported by EVT affect your decision to use them in other projects? IF YES: PROBE HOW SO.

NON-STANDARD HVAC or LIGHTING SYSTEMS AND END USE > MAY SKIP AS APPROPRIATE

42. In addition to the building's lighting and mechanical equipment, were there additional HVAC or lighting systems installed for specific use, such as: **(CHECK ALL THAT APPLY – SKIP SECTION IF NONE)**
- a. Commercial kitchens/refrigeration
 - b. Clean rooms
 - c. Data centers
 - d. Temperature/humidity sensitive areas
 - e. Broadcast studios
 - f. Other _____
43. Who participated in choosing the design and types for these special applications?
- a. In-house personnel
 - b. Corporate offices outside Vermont
 - c. Architect located in Vermont
 - d. Architect located outside of Vermont
 - e. Consulting mechanical/electrical/refrigeration engineers
 - f. Mechanical/electrical/refrigeration contractors
 - g. Mechanical/electrical/refrigeration suppliers
 - h. Efficiency Vermont
 - i. Utility company reps [including gas]
 - j. Other _____
44. Of the above, whom were most instrumental in finalizing specialized systems?
45. Were these systems included as part of the new construction plans and documents, or, were they installed under separate contracts according to tenant specifications?
46. What role did EVT play in the selection and installation of any of these systems? [PROBE FOR SPECIFICS OF INCENTIVES AND/OR TECHNICAL SUPPORT]
47. IF EVT WAS INVOLVED > How would this portion of the project have been different if no EVT support or incentives existed?



PROJECT HISTORY/EVT INVOLVEMENT

48. Could you describe for me how EVT became involved in this project? PROBE FOR CHANNEL, E.G. VIA ARCHITECT, CONTRACTOR, OR DIRECTLY TO OWNER/PRINCIPAL. PROBE WHETHER EVT TOOK INITIATIVE TO CONTACT PEOPLE INVOLVED WITH THE PROJECT OR IF THE INITIATIVE CAME FROM THE OWNER OR DESIGN PROFESSIONAL.
49. At what stage of project development did EVT become involved?
50. Did you have any direct contact with representatives of EVT?
51. Through your or your designer's contact with EVT, did you learn about any energy efficiency technologies or strategies that you had not been aware of prior to the project?
- IF YES: What were those technologies?
52. What had been the most useful EVT service or incentive? Why?
53. Were there other EVT services or incentives available that you did not find useful? Why?
54. How would you characterize the quality of the services you received from EVT? Why?
55. Are there ways EVT could have improved the services it delivered to your organization? IF YES: In what ways do you think they could have been improved?

56. Did your participation in the EVT program affect the schedule for project completion? IF YES:
How so?
57. Did your participation in the EVT program affect the way you or your company approaches energy management in your facilities? IF YES: Could you describe those effects?

On-Site Recruitment

OR1. Finally, as part of this energy efficiency evaluation for the Vermont Department of Public Service, we are conducting a number of on-site visits to organizations such as yours to make note of specific features of your energy using equipment. This data is very helpful for developing energy efficiency programs and planning for the state's future energy needs. This on-site survey would be conducted at your convenience and would take about one hour. As compensation for your participation in this important research, we will pay you \$50.

Do you think you might be interested in participating?

- 1 Yes
2 No → [Thank and Terminate]

[If Asked: You would be visited by a contracted on-site interviewer working on behalf of the State of Vermont.]

OR2. [\[IF OR1=1\]](#) Great! You will be contacted by an on-site survey specialist to schedule an appointment. I'll just need to get a little information:

Name	*	_____
Telephone	*CONFIRM	_____
Organization		_____
Address:		_____
Best time to Call		_____

Thank you for your participation in this survey.

SURVEY OF EFFICIENCY VT COMMERCIAL HVAC PROGRAM PARTICIPANTS**From the EVT Program Database**

Project Name: [from database]	Site Address: [from database]
CITY	STATE
FIRST NAME	LAST NAME
PHONE	

Measure Table

	KEMA MDX	
M1		
M2		
M3		
M4		

Ask for contact name

Lead-in and Screeners

Hello, my name is _____ with _____. I am conducting research for an evaluation of Efficiency Vermont's programs for the Vermont Department of Public Service. May I speak with [CONTACT NAME]?

IF CONTACT IS AVAILABLE PROCEED TO LEAD-IN.

IF CONTACT STILL WORKS AT COMPANY/ORGANIZATION, BUT IS NOT AVAILABLE,
RECORD TIME TO CALL BACK:

SC1: ENTER CALL BACK TIME, DAY: __ __/__ __/____

SC2: ENTER CALL BACK TIME, HOUR: __ __: __ __

IF CONTACT NAME NO LONGER WORKS AT THE COMPANY/ORGANIZATION ASK:

May I speak to the person in your organization who manages construction or maintenance at [Project Name1]?

WHEN THIS PERSON PICKS UP:

RECORD NAME OF NEW CONTACT: _____

SC3. Are you familiar with a project completed in 2003 or 2004 to install new Heating, Ventilation, or Air Conditioning equipment in your [Project Name1]?

EVT Commercial Lighting Program Participant

Yes → ASK SC4.

No → ASK IF THERE IS SOMEONE IN THE ORGANIZATION WHO WOULD BE FAMILIAR WITH THE PROJECT, ESTABLISH CONTACT, AND RETURN TO SC3.

No one in the organization is familiar with the project → THANK AND TERMINATE

SC4. Were you involved in selecting or approving any of the HVAC or designs used in [Project Name1]?

Yes → ASK A1.

No → THANK AND TERMINATE

Facility Details

F1. Does your organization own [Project Name]?

1 Yes

2 No

F1a Does your organization occupy [Project Name]?

1 Yes

2 No

F2. Which type of building best describes the building at (address from list). Is it an ..

1. Office

2. Retail

3. Industrial

4. School (non-college)

5. Warehouse

6. Public buildings, health care, college, church or other institutional

7. Multi-family building four stories or taller

8. Multi-family building one, two or three stories

9. Other

F3. Which fuel is used for most of the space heating at this location?

1. Fuel Oil

2. Natural Gas

3. Propane/bottled gas

4. Electricity

00. Or something else? _____

88. (DK)

99. (REF)

EVT Commercial Lighting Program Participant

F4. What is your best estimate of your average monthly electricity bill paid by your firm for this location?

ENTER \$ PER MONTH _____ DK = 8,888,888 REF = 9,999,999

F5. What is your best estimate of your average monthly energy bills for all fuels paid by your firm for this location - excluding electricity?

ENTER \$ PER MONTH _____ DK = 8,888,888 REF = 9,999,999

F6. What is your best estimate of the enclosed floor space at [Project Name]?

ENTER NUMBER; 88 for DK, 99 for REF _____ SF

F7. What is your best estimate of the number of employees that work at [Project Name]?

ENTER NUMBER; 88 for DK, 99 for REF _____

Project Description

P1. Approximately what percentage of your total floor space at this facility did the HVAC project affect?

ENTER PERCENT _____%

P2. Was the HVAC improvement project part of ...(READ RESPONSES)? CODE YES =1; 0 = NO.

Type of Project	P2
1. Construction of a new building	
2. An addition to an existing building	
3. A gut rehab or major renovation of an existing building	
4. A remodel of part of an existing building	
6. Other type of construction activity (Specify) _____	

Program Effect on Measure Selection

E1 Which of the following kinds of building professionals participated in designing the HVAC project? CODE 1 = YES; 2 = NO; 3 = DK.

E2 FOR EACH CATEGORY FOR WHICH E1 = 1, ASK: Using a scale of 1 to 5 where 1 means 'not at all important' and 5 = 'very important', how important was the [BUILDING PROFESSIONAL] in designing project?

	E1	E2
a. Your organization's facility manager or engineer		
b. An Architect or Interior Designer		
c. A Mechanical Engineer		
d. An HVAC Installation Contractor		
e. The General Contractor		
f. An HVAC equipment distributor or manufacturer		

E3 Which of the following kinds of building professionals participated in selecting the equipment to be used in the project? CODE 1 = YES; 2 = NO; 3 = DK.

E4 FOR EACH CATEGORY FOR WHICH E3 = 1, ASK: Using a scale of 1 to 5 where 1 means 'not at all important' and 5 = 'very important', how important was the [BUILDING PROFESSIONAL] in selecting the equipment?

	E3	E4
a. Your organization's facility manager or engineer		
b. An Architect or Interior Designer		
c. A Mechanical Engineer		
d. An HVAC Installation Contractor		
e. The General Contractor		
f. An HVAC equipment distributor or manufacturer		

Now I'd like to ask you about some of the specific improvements you made through this project.

FOR EACH MEASURE LISTED IN THE MEASURE TABLE ASK E5 – E12.

E6 Prior to planning this project, had you heard of [M1 ... M4]?

1. Yes
2. No → SKIP TO E8
3. DK → SKIP TO E8

E7 Prior to planning this project, had you used **[M1 ... M4]** in any of the facilities your organization occupies?

1. Yes
2. No
3. DK

E8. As best you can remember, who first suggested that **[M1 ... M4]** be included in your recent project?

1. Respondent
2. Someone in the respondent's organization, e.g. facility manager
3. Building professional: architect
4. Building professional: electrical engineer
5. Building professional: lighting designer
6. Building professional: electrical or lighting contractor
7. Lighting equipment supplier
8. Efficiency Vermont representative
9. Other (Specify) _____
10. DK/REF

E9. Did you have any reservations about using **[M1 ... M4]** in the project?

- 1 Yes
- 2 No → SKIP TO E12
- 3 Don't know → SKIP TO E12

E10. What were those reservations? [DON'T READ. ACCEPT MULTIPLES.]

1. Cost was too high
2. Not sure that savings would justify extra costs
3. Not sure that equipment would work reliably
4. Not familiar with the technology
5. Not satisfied with measure performance in other projects/facilities
6. Not sure equipment would deliver sufficient amount of light
7. Not sure equipment would deliver appropriate lighting quality
8. Not satisfied with the appearance of the equipment
9. Concerned about problems with maintenance or bulb replacement
10. Other (Specify) _____
11. DK/REF

EVT Commercial Lighting Program Participant

- E11 On a scale of 1 to 5, where 1 means 'not at all important' and 5 means 'very important', how important was the Efficiency Vermont program in helping to overcome your reservations about using **[M1 ... M4]** in the project?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

- E12 On a scale of 1 to 5, where 1 means 'not at likely' and 5 means 'very likely', how likely is it that you would have included **[M1 ... M4]** in the project without the support you received from the Efficiency Vermont program?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

Potential Spillover Effects

- S1 Since completing the HVAC project we just discussed, has your organization undertaken any additional projects to install, replace, or improve HVAC systems in this or other facilities in Vermont?

- 1 Yes
- 2 No → SKIP TO V0
- 3 Don't know → SKIP TO V0

- S2 Did you use any of the following kinds of equipment in these projects? CODE 1= YES, 2 = NO, 3 = DK.

- S3 FOR ALL MEASURES CODED 1 IN S2, ASK: Did you receive financial incentives from EVT to install that equipment? CODE 1= YES, 2 = NO, 3 = DK.

- S3a FOR ALL MEASURES CODED 1 IN S2, ASK: On a scale of 1 to 5, where 1 means 'not at all important' and 5 means 'very important', how important was your experience with Efficiency Vermont in your decision to use **[M1 ... M4]**?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

	KEMA Measure Description	S2	S3	S3a
M1	FROM SAMPLE DATABASE			
M2				
M3				
M4				

S4 Did you use any other energy-efficient lighting equipment or design approaches in these other projects?

- 1 Yes
- 2 No → SKIP TO V0
- 3 Don't know → SKIP TO V0

S5. What were they?

ENTER VERBATIM: _____

S6 On a scale of 1 to 5, where 1 means 'not at all important' and 5 means 'very important', how important was your experience with Efficiency Vermont in your decision to use these other measures?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

Program Experience

V0 The next set of questions focuses on your experience with the Efficiency Vermont program.

V1 Were you aware of Efficiency Vermont prior to undertaking the HVAC project for which you received financial incentives?

- 1 Yes
- 2 No
- 3 Don't know

V2 How did you first become aware of Efficiency Vermont?

- 1 Received a telephone call from an Efficiency Vermont representative
- 2 Received a personal visit from an Efficiency Vermont representative
- 3 Was informed by a contractor or equipment supplier
- 4 Was informed by utility company
- 5 Was informed by a business colleague
- 6 Was informed by a friend
- 7 Saw a newspaper story
- 8 Saw paid advertising in a newspaper or trade journal
- 9 Other (Specify) _____
- 10 DK/REF

V3 Which of the following services did you receive from Efficiency Vermont? [READ CHOICES. ACCEPT MULTIPLES.]

- 1. General information on energy efficiency opportunities
- 2. Technical assistance specific to your facility or project
- 3. Financial incentives for energy efficiency measures
- 4. Other (Specify) _____
- 5. None
- 6. DK/REF

IF V3 = 5, SKIP TO D0.

V4 In the course of carrying out the lighting improvement project did you have any direct contact with Efficiency Vermont in any of the following ways? [READ CHOICES. ACCEPT MULTIPLES.]

- 1 Over the telephone
- 2 In-person
- 3 Through e-mail or other correspondence
- 4 DK/REF

V5 Using a scale of 1 to 5, where 1 means 'not at all satisfied' and 5 means 'very satisfied' how satisfied were you with the following aspects of your dealings with Efficiency Vermont? If any of the items are not applicable to your project, let me know. CODE 1 – 5; 6 FOR NOT APPLICABLE; 7 FOR DK; 8 FOR REF.

	V5
a. Timeliness of response to your inquiries.	
b. Timeliness in processing incentive applications	
c. Usefulness of general information provided	
d. Usefulness of technical assistance provided	
e. Professionalism of Efficiency Vermont staff	

V6 Do you believe that participating the Efficiency Vermont program delayed the completion of your project?

- 1 Yes
- 2 No
- 3 Don't know

IF VG = 1, ASK V7. ELSE SKIP TO V8.

V7 Approximately how long was the project delayed?

ENTER VERBATIM _____

V8 Based on your experience with this project, would you work with Efficiency Vermont again when making improvements to your facilities?

- 1 Yes
- 2 No
- 3 Don't know

IF V8 = 2 OR 3, ASK V9. ELSE SKIP TO V10.

V9 Why not?

ENTER VERBATIM: _____

V10 Do you have any suggestions about how Efficiency Vermont's programs could be made more useful to your organization?

- 1 Yes
- 2 No
- 3 Don't know

IF V10 = 1, ASK V11. ELSE SKIP TO D0.

V11 What are those suggestions?

ENTER VERBATIM: _____

D0 The next set of questions focuses on your company's energy management activities.

D1 Is there a person, group, or department in your organization that is assigned by top management to manage energy use and costs?

- 1. Yes, one person
- 2. Yes, a group
- 3. Yes, a department
- 4. No →GO TO D5
- 88. (DK) →GO TO D5
- 99. (REF) →GO TO D5

D2 Is this < PERSON, GROUP, OR DEPARTMENT> located at your facility, corporate headquarters, or another location?

- 1. Respondent's facility
- 2. Corporate headquarters
- 3. Another facility
- 88. (DK)
- 99. (REF)

D3 Who does this <D2A: PERSON, GROUP, OR DEPARTMENT> report to? [PROMPT IF NECESSARY]

- 1.Plant or General Manager
- 2.Facilities Manager
- 3.Building or Plant Engineer
- 4.Office Manager
- 5.Treasurer/VP Finance
- 6.Chief Operating Officer
- 7.Central Corporate Facilities Manager
- 8.President/ CEO
- 9.Owner/Proprietor
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

D4 Are there persons in your organization who have been assigned responsibility for the following activities?

[1. YES 2. NO 88.(DK) 99. (REF)]

- A. Tracking energy use and costs over time for the facility as a whole
- B. Monitoring energy use for key building or production systems
- C. Identifying facility improvements to reduce energy use and costs on an ongoing basis

D5 Does your company have energy cost reduction goals?

- 1. Yes
- 2. No [→GO TO D7](#)
- 88. (DK) [→GO TO D7](#)
- 99. (REF) [→GO TO D7](#)

D6 What are those goals?

ENTER VERBATIM _____
[88 = DK, 99 = REFUSED]

D7 Does your organization engage consultants or specialty contractors periodically to assist in identifying and capturing energy savings?

- 1. Yes
- 2. No
- 88. (DK)
- 99. (REF)

THANK YOU FOR YOUR TIME AND COOPERATION. *

SURVEY OF EFFICIENCY VT COMMERCIAL LIGHTING PROGRAM PARTICIPANTS**From the EVT Program Database**

Project Name: [from database]	Site Address: [from database]
CITY	STATE
FIRST NAME	LAST NAME
PHONE	

Measure Table

	KEMA MDX	
M1		
M2		
M3		
M4		

Ask for contact name

Lead-in and Screeners

Hello, my name is _____ with _____. I am conducting research for an evaluation of Efficiency Vermont's programs for the Vermont Department of Public Service. May I speak with [CONTACT NAME]?

IF CONTACT IS AVAILABLE PROCEED TO LEAD-IN.

IF CONTACT STILL WORKS AT COMPANY/ORGANIZATION, BUT IS NOT AVAILABLE,
RECORD TIME TO CALL BACK:

SC1: ENTER CALL BACK TIME, DAY: __ __/__ __/____

SC2: ENTER CALL BACK TIME, HOUR: __ __: __ __

IF CONTACT NAME NO LONGER WORKS AT THE COMPANY/ORGANIZATION ASK:

May I speak to the person in your organization who manages construction or maintenance at [Project Name1]?

WHEN THIS PERSON PICKS UP:

RECORD NAME OF NEW CONTACT: _____

SC3. Are you familiar with a project completed in 2003 or 2004 to install new lighting equipment in your [Project Name1]?

EVT Commercial Lighting Program Participant

Yes → ASK SC4.

No → ASK IF THERE IS SOMEONE IN THE ORGANIZATION WHO WOULD BE FAMILIAR WITH THE PROJECT, ESTABLISH CONTACT, AND RETURN TO SC3.

No one in the organization is familiar with the project → THANK AND TERMINATE

SC4. Were you involved in selecting or approving any of the lighting equipment or designs used in [Project Name1]?

Yes → ASK A1.

No → THANK AND TERMINATE

Facility Details

F1. Does your organization own [Project Name]?

1 Yes

2 No

F1a Does your organization occupy [Project Name]?

1 Yes

2 No

F2. Which type of building best describes the building at (address from list). Is it an ..

1. Office

2. Retail

3. Industrial

4. School (non-college)

5. Warehouse

6. Public buildings, health care, college, church or other institutional

7. Multi-family building four stories or taller

8. Multi-family building one, two or three stories

9. Other

EVT Commercial Lighting Program Participant

F3. What is your best estimate of the enclosed floor space at [Project Name]?

ENTER NUMBER; 88 for DK, 99 for REF _____ SF

F4. What is your best estimate of the number of employees that work at [Project Name]?

ENTER NUMBER; 88 for DK, 99 for REF _____

Project Description

P1. Approximately what percentage of your total floor space at this facility did the lighting improvement project affect?

ENTER PERCENT _____%

P2. Was the lighting improvement project part of ...(READ RESPONSES)? CODE YES =1; 0 = NO.

Type of Project	P2
1. Construction of a new building	
2. An addition to an existing building	
3. A gut rehab or major renovation of an existing building	
4. A remodel of part of an existing building	
6. Other type of construction activity (Specify)	

Program Effect on Measure Selection

E1 Which of the following kinds of building professionals participated in designing the layout and control system for the lighting improvement project? CODE 1 = YES; 2 = NO; 3 = DK.

E2 FOR EACH CATEGORY FOR WHICH E1 = 1, ASK: Using a scale of 1 to 5 where 1 means 'not at all important' and 5 = 'very important', how important was the [BUILDING PROFESSIONAL] in designing the layout and control system?

	E1	E2
a. Your organization's facility manager or engineer		
b. An Architect or Interior Designer		
c. An Electrical Engineer		
d. A Lighting or Electrical Contractor		
e. The General Contractor		
f. A Lighting equipment supplier or distributor		

EVT Commercial Lighting Program Participant

- E3 Which of the following kinds of building professionals participated in selecting the actual lighting fixtures and controls to be used in the project? CODE 1 = YES; 2 = NO; 3 = DK.
- E4 FOR EACH CATEGORY FOR WHICH E3 = 1, ASK: Using a scale of 1 to 5 where 1 means 'not at all important' and 5 = 'very important', how important was the [BUILDING PROFESSIONAL] in selecting the lighting fixtures and control equipment?

	E3	E4
a. Your organization's facility manager or engineer		
b. An Architect or Interior Designer		
c. An Electrical Engineer		
d. A Lighting or Electrical Contractor		
e. The General Contractor		
f. A Lighting equipment supplier or distributor		

Now I'd like to ask you about some of the specific improvements you made through this project.

FOR EACH MEASURE LISTED IN THE MEASURE TABLE ASK E5 – E12.

- E6 Prior to planning this project, had you heard of [M1 ... M4]?

1. Yes
2. No → SKIP TO E8
3. DK → SKIP TO E8

- E7 Prior to planning this project, had you used [M1 ... M4] in any of the facilities your organization occupies?

1. Yes
2. No
3. DK

E8. As best you can remember, who first suggested that
[M1 ... M4] be included in your recent project?

1. Respondent
2. Someone in the respondent's organization, e.g. facility manager
3. Building professional: architect
4. Building professional: electrical engineer
5. Building professional: lighting designer
6. Building professional: electrical or lighting contractor
7. Lighting equipment supplier
8. Efficiency Vermont representative
9. Other (Specify) _____
10. DK/REF

E9. Did you have any reservations about using [M1 ... M4] in the project?

- 1 Yes
- 2 No → SKIP TO E12
- 3 Don't know → SKIP TO E12

E10. What were those reservations? [DON'T READ. ACCEPT MULTIPLES.]

1. Cost was too high
2. Not sure that savings would justify extra costs
3. Not sure that equipment would work reliably
4. Not familiar with the technology
5. Not satisfied with measure performance in other projects/facilities
6. Not sure equipment would deliver sufficient amount of light
7. Not sure equipment would deliver appropriate lighting quality
8. Not satisfied with the appearance of the equipment
9. Concerned about problems with maintenance or bulb replacement
10. Other (Specify) _____
11. DK/REF

E11 On a scale of 1 to 5, where 1 means 'not at all important' and 5 means 'very important',
how important was the Efficiency Vermont program in helping to overcome your
reservations about using [M1 ... M4] in the project?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

EVT Commercial Lighting Program Participant

- E12 On a scale of 1 to 5, where 1 means 'not at likely' and 5 means 'very likely', how likely is it that you would have included **[M1 ... M4]** in the project without the support you received from the Efficiency Vermont program?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

Potential Spillover Effects

- S1 Since completing the lighting project we just discussed, has your organization undertaken any additional projects to install, replace, or improve lighting systems in this or other facilities in Vermont?

1 Yes
2 No → SKIP TO V0
3 Don't know → SKIP TO V0

- S2 Did you use any of the following kinds of equipment in these projects? CODE 1= YES, 2 = NO, 3 = DK.

- S3 FOR ALL MEASURES CODED 1 IN S2, ASK: Did you receive financial incentives from EVT to install that equipment? CODE 1= YES, 2 = NO, 3 = DK.

- S3a FOR ALL MEASURES CODED 1 IN S2, ASK: On a scale of 1 to 5, where 1 means 'not at all important' and 5 means 'very important', how important was your experience with Efficiency Vermont in your decision to use **[M1 ... M4]**?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

	KEMA Measure Description	S2	S3	S3a
M1	FROM SAMPLE DATABASE			
M2				
M3				
M4				

- S4 Did you use any other energy-efficient lighting equipment or design approaches in these other projects?

1 Yes
2 No → SKIP TO V0
3 Don't know → SKIP TO V0

S5. What were they?

ENTER VERBATIM: _____

S6 On a scale of 1 to 5, where 1 means 'not at all important' and 5 means 'very important', how important was your experience with Efficiency Vermont in your decision to use these other measures?

CODE 1 – 5, 8 FOR DK, 9 FOR REF _____

Program Experience

V0 The next set of questions focuses on your experience with the Efficiency Vermont program.

V1 Were you aware of Efficiency Vermont prior to undertaking the lighting project for which you received financial incentives?

- 1 Yes
- 2 No
- 3 Don't know

V2 How did you first become aware of Efficiency Vermont?

- 1 Received a telephone call from an Efficiency Vermont representative
- 2 Received a personal visit from an Efficiency Vermont representative
- 3 Was informed by a contractor or equipment supplier
- 4 Was informed by utility company
- 5 Was informed by a business colleague
- 6 Was informed by a friend
- 7 Saw a newspaper story
- 8 Saw paid advertising in a newspaper or trade journal
- 9 Other (Specify) _____
- 10 DK/REF

V3 Which of the following services did you receive from Efficiency Vermont? [READ CHOICES. ACCEPT MULTIPLES.]

- 1. General information on energy efficiency opportunities
- 2. Technical assistance specific to your facility or project
- 3. Financial incentives for energy efficiency measures
- 4. Other (Specify) _____
- 5. None
- 6. DK/REF

IF V3 = 5, SKIP TO D0.

EVT Commercial Lighting Program Participant

V4 In the course of carrying out the lighting improvement project did you have any direct contact with Efficiency Vermont in any of the following ways? [READ CHOICES. ACCEPT MULTIPLES.]

- 1 Over the telephone
- 2 In-person
- 3 Through e-mail or other correspondence
- 4 DK/REF

V5 Using a scale of 1 to 5, where 1 means 'not at all satisfied' and 5 means 'very satisfied' how satisfied were you with the following aspects of your dealings with Efficiency Vermont? If any of the items are not applicable to your project, let me know. CODE 1 – 5; 6 FOR NOT APPLICABLE; 7 FOR DK; 8 FOR REF.

	V5
a. Timeliness of response to your inquiries.	
b. Timeliness in processing incentive applications	
c. Usefulness of general information provided	
d. Usefulness of technical assistance provided	
e. Professionalism of Efficiency Vermont staff	

V6 Do you believe that participating the Efficiency Vermont program delayed the completion of your project?

- 1 Yes
- 2 No
- 3 Don't know

IF VG = 1, ASK V7. ELSE SKIP TO V8.

V7 Approximately how long was the project delayed?

ENTER VERBATIM _____

V8 Based on your experience with this project, would you work with Efficiency Vermont again when making improvements to your facilities?

- 1 Yes
- 2 No
- 3 Don't know

IF V8 = 2 OR 3, ASK V9. ELSE SKIP TO V10.

V9 Why not?

ENTER VERBATIM: _____

V10 Do you have any suggestions about how Efficiency Vermont's programs could be made more useful to your organization?

- 1 Yes
- 2 No
- 3 Don't know

IF V10 = 1, ASK V11. ELSE SKIP TO D0.

V11 What are those suggestions?

ENTER VERBATIM: _____

D0 The next set of questions focuses on your company's energy management activities.

D1 Is there a person, group, or department in your organization that is assigned by top management to manage energy use and costs?

- 1. Yes, one person
- 2. Yes, a group
- 3. Yes, a department
- 4. No →GO TO D5
- 88. (DK) →GO TO D5
- 99. (REF) →GO TO D5

D2 Is this < PERSON, GROUP, OR DEPARTMENT> located at your facility, corporate headquarters, or another location?

- 1. Respondent's facility
- 2. Corporate headquarters
- 3. Another facility
- 88. (DK)
- 99. (REF)

D3 Who does this <D2A: PERSON, GROUP, OR DEPARTMENT> report to? [PROMPT IF NECESSARY]

- 1.Plant or General Manager
- 2.Facilities Manager
- 3.Building or Plant Engineer
- 4.Office Manager
- 5.Treasurer/VP Finance
- 6.Chief Operating Officer
- 7.Central Corporate Facilities Manager
- 8.President/ CEO
- 9.Owner/Proprietor
- 00. (OTHER_____)
- 88. (DK)
- 99. (REF)

D4 Are there persons in your organization who have been assigned responsibility for the following activities?

[1. YES 2. NO 88.(DK) 99. (REF)]

- A. Tracking energy use and costs over time for the facility as a whole
- B. Monitoring energy use for key building or production systems
- C. Identifying facility improvements to reduce energy use and costs on an ongoing basis

D5 Does your company have energy cost reduction goals?

- 1. Yes
- 2. No [→GO TO D7](#)
- 88. (DK) [→GO TO D7](#)
- 99. (REF) [→GO TO D7](#)

D6 What are those goals?

ENTER VERBATIM _____
[88 = DK, 99 = REFUSED]

D7 Does your organization engage consultants or specialty contractors periodically to assist in identifying and capturing energy savings?

- 1. Yes
- 2. No
- 88. (DK)
- 99. (REF)

THANK YOU FOR YOUR TIME AND COOPERATION. *

EVT ELECTRICAL CONTRACTOR SURVEY

DRAFT 4/13

Business Name:	Address:
City	ZIP
SIC Code	Sample Stratum
Telephone Number	Contact Name

INTRODUCTION

INTRO: Hello, this is _____ calling from Research America on behalf of the Vermont Department of Public Service. We are conducting research on the commercial and industrial lighting market in new construction and major renovations in your area. I would like to speak with the person in your company who is most familiar with your firm's lighting work.

Would that be you?

IF YES→ "Great!" [GO TO S0]

**If timing is inconvenient, record name and schedule a call back.*

IF NO→ Ask to speak to the appropriate person and repeat INTRO.*

**If appropriate respondent is not available record name and schedule a call back.*

[IF NEEDED] This is a fact-finding survey only – we are NOT interested in selling anything. All information you provide will be confidential and will not be linked in any way to you or your company.

[IF NEEDED] This survey will take about 10 - 15 minutes.

SCREENER

S1. Does your company...[ACCEPT MULTIPLES]

Manufacture commercial or industrial lighting equipment ...	1	
Design or layout commercial or industrial lighting	2	
Install commercial or industrial lighting equipment.....	3	→ CONTINUE
Sell commercial or industrial lighting equipment	4	
(Don't know) ¹	8	

IF S1 = 3 THEN CONTINUE, OTHERWISE THANK AND END SURVEY

S2. Is commercial and industrial lighting a significant part of your business?

Yes.....	1	→ GO TO A1
No	2	
(Don't know)	8	

¹ Responses in parentheses are not read aloud.

EVT ELECTRICAL CONTRACTOR SURVEY

S3. Does your company do more than \$50,000 per year in commercial and industrial lighting work?

Yes..... 1
No..... 2 →THANK & TERMINATE
(Don't Know) 8 →THANK & TERMINATE

A. ESTABLISHMENT CHARACTERISTICS

A1. Which of the following best describes your firm?

Electrical contractor 1
Lighting contractor 2
Lighting maintenance company 3
Other: 7
(Don't know) 8

A2. How would you describe your own position?

Proprietor/CEO..... 1
Director of Sales..... 2
Engineer 3
Designer 4
Manager..... 5
Other: 7
(Don't know) 8

A3. How many locations does your firm have in Vermont?

ENTER NUMBER____
DK=888 REF=999

A4. How many full-time equivalent workers of all types do you employ at this location?

ENTER NUMBER____
DK=888 REF=999

A5. Roughly how many commercial and industrial lighting installation projects did your firm work on in the last 12 months in Vermont?

ENTER NUMBER____
DK=888 REF=999

A6. Approximately, what share of your company's annual revenue is related to commercial and industrial lighting work in Vermont?

ENTER PERCENTAGE____%
DK=888 REF=999

EVT ELECTRICAL CONTRACTOR SURVEY

A7. Approximately, what percentage of your commercial and industrial lighting revenues are contributed by...

- a. New construction.....____%
 - b. Major renovation and remodeling____%
 - c. Retrofit of operable equipment.....____%
 - d. Replacement of failed equipment.....____%
- 100 %

DK=888 REF=999

A8. In approximately what percent of your projects do you work ...

- a. for a General Contractor____%
 - b. directly for the building Owner____%
 - c. for another part in the project____%
- 100 %

DK=888 REF=999

FOR EACH <EVENT>: A10. NEW CONSTRUCTION A11. REMODELING A12. REPLACEMENT:

What percent of your <EVENT> projects do you generally obtain through (a) competitive bid on existing specifications; (b) through proposals which include factors other than price; or (c) through established relationships with general contractors or building owners? ENTER PERCENT

	EVENT		
	A10 New Construction	A11 Remodeling	A12 Replacement
a. Competitive Bid			
b. Proposals			
c. Established relations			
	100%	100%	100%

DK=888 REF=999

C. ROLE IN SPECIFICATION

Now I'd like to ask some questions about lighting specifications.

C1. Roughly speaking, for what percent of your NEW CONSTRUCTION projects does **your company** specify the equipment to be installed, as opposed to an architect or engineer? ENTER PERCENTAGE____%

DK=888 REF=999

C2. Roughly speaking, for what percent of your REMODELING projects does **your company** specify the equipment to be installed, as opposed to an architect or engineer? ENTER PERCENTAGE____%

DK=888 REF=999

EVT ELECTRICAL CONTRACTOR SURVEY

C3. Do you use any software, manuals, or other tools in doing lighting layouts and specifications?

- | | | |
|--------------|---|------------|
| Yes | 1 | |
| No | 2 | ➔ GO TO C5 |
| (Don't Know) | 8 | ➔ GO TO C5 |

C4. What is the name or type of software or other tools do you use for lighting layouts and specifications? _____ ENTER VERBATIM. ACCEPT MULTIPLES.

C5. For the lighting equipment you sell into NEW CONSTRUCTION projects, who would you say has the most influence in specification and placement of lighting equipment?
DO NOT READ. ACCEPT MULTIPLES.

C6. For the lighting equipment you sell into REMODELING projects, who would you say has the most influence in specification and placement of lighting equipment?
DO NOT READ. ACCEPT MULTIPLES.

- | | | |
|--------|----|-------------------------------|
| CODES: | 1 | (Developer) |
| | 2 | (Owner/Tenant) |
| | 3 | (Architect) |
| | 4 | (Electrical Engineer) |
| | 5 | (Lighting Designer) |
| | 6 | (General Contractor) |
| | 7 | (Lighting/Electr Contractor) |
| | 8 | (Lighting/Electr Distributor) |
| | 9 | (Manufacturers) |
| | 77 | (Other_____) |
| | 88 | (Don't know) |

C7. On a scale from 1 to 5 where 1 is not at all important and 5 is very important, How important do your commercial customers consider the following lighting equipment characteristics:
[DK = 8]

- C7a. Initial cost of the equipment
- C7b. Total lifecycle costs \ energy efficiency
- C7c. Quality of Light.....
- C7d. Maintenance of lighting level (lumen depreciation)
- C7e. Ease of Maintenance

F. RESPONSE TO PROGRAM

F1. Are you aware Efficiency Vermont?

Yes	1	
No	2	➔ GO TO D1
(Don't know)	8	➔ GO TO D1

F1.a How did your company first become aware of Efficiency Vermont's programs? [ACCEPT MULTIPLES.]

Visit or call from Efficiency Vermont representative	1
From colleague or distributor in the business	2
From media reports	3
From advertisements	4
From a customer	5
Other (Specify)	6
(Don't know)	8

F1.b [ASK IF F1.a ≠1] Has your company been approached by a representative of Efficiency Vermont to participate in the organization's programs?

Yes	1
No	2
(Don't know)	8

F2. Have you participated in projects that have received incentives from Efficiency Vermont?

Yes	1	
No	2	➔ GO TO F4
(Don't know)	8	➔ GO TO F4

F3. Roughly how many such projects did you participate in the last 12 months?

ENTER NUMBER OF PROJECTS_____ [DK = 888]

F4. a. Have you used any other programs or services from Efficiency Vermont?

Yes	1	
No	2	➔ GO TO F5
(Don't know)	8	➔ GO TO F5

- b. What programs or services were they? ENTER VERBATIM____
- c. What benefits do you believe you gained from the program(s)? ENTER VERBATIM____
- d. What steps could Efficiency Vermont take to make such programs more valuable to you and your company? ENTER VERBATIM____

EVT ELECTRICAL CONTRACTOR SURVEY

F5. **[ASK IF F2≠1 and F4≠1]** Why has your organization not participated in any of Efficiency Vermont programs? ENTER VERBATIM_____

D. INSTALLATION

Now I'd like to ask you a few questions about recent experience with specification and installation of specific kinds of equipment over the past 12 months.

D1. In what percentage of commercial and industrial lighting projects did you recommend or specify [READ TECHNOLOGY FROM ANSWER GRID]? Your best estimate is fine.

D2. In what percentage of commercial and industrial lighting projects did you actually install [READ TECHNOLOGY FROM ANSWER GRID]?

DK=888 REF=999

Technology	ENTER PERCENT	
	D1	D2
a. T-8 lamps with electronic ballasts		
b. Super T-8 lamps with low ballast factor ballasts		
c. T-5 lamp technology		
d. Dimmable ballasts		
e. Fluorescent technology in place of HID applications		
f. Occupancy controls		
g. Controls that enable increased use of daylight		
h. Controls other than occupancy and daylighting		

DK=888 REF=99

EVT ELECTRICAL CONTRACTOR SURVEY

FOR EACH ITEM a – h: IF D2 < D1, ASK D3. ELSE SKIP TO D4.

D3. What do you think is the main reason why customers did not follow your recommendations in regard to installing [NAME OF TECHNOLOGY]? DO NOT READ. ACCEPT MULTIPLES

- (Cost is too high) 1
- (Appearance of equipment) 2
- (Quality of light) 3
- (Difficulty in maintenance) 4
- (Lack of information about performance) 5
- (Difficulty of installation) 6
- (Requires rewiring, remodeling, or other ancillary work)..... 7
- (Other Specify____) 77
- (Don't know) 88

Technology	D3
a. T-8 lamps with electronic ballasts	
b. Super T-8 lamps with low ballast factor ballasts	
c. T-5 lamp technology	
d. Dimmable ballasts	
e. Fluorescent technology in place of HID applications	
f. Occupancy controls	
g. Controls that enable increased use of daylight	
h. Controls other than occupancy and daylighting	

IF F2 = 1, ASK D4. ELSE SKIP TO D5.a.

FOR EACH ITEM a – h: IF D1 > 0, ASK D4. ELSE SKIP TO D5.

D4. Using a scale of 1 to 5 where 1 is “no influence” and 5 is “high influence”, how much influence did your experience with Efficiency Vermont have in your decisions to recommend [TECHNOLOGY a – h]? CODE 1 – 5; DK=888 REF=99.

Technology	D4
a. T-8 lamps with electronic ballasts	
b. Super T-8 lamps with low ballast factor ballasts	
c. T-5 lamp technology	
d. Dimmable ballasts	
e. Fluorescent technology in place of HID applications	
f. Occupancy controls	
g. Controls that enable increased use of daylight	
h. Controls other than occupancy and daylighting	

D5. Daylighting is a set of design and control techniques to take advantage daylight to reduce lighting power use. On a scale of 1 to 5 where 1 is “no experience” and 5 is “a great deal of experience”, how would you rate your level of experience in applying these techniques?

ENTER CODE 1 – 5; DK=888; REF = 99. _____

D6. What do you think are the biggest hurdles to greater use of advanced lighting controls?

[DO NOT READ. ACCEPT MULTIPLES.]

(Need for coordination among designers, engineers, contractors)	1
(Climate too cloudy)	2
(Extra equipment cost)	3
(Extra labor cost)	4
(Glare problems)	5
(Overheating or cooling)	6
(Need for follow-up maintenance and re-tuning)	7
(Unreliability of equipment)	8
(Other (Specify__))	77
(Don't know)	88

E. BUSINESS RATIONALE FOR ENERGY EFFICIENCY

E1.a What do you think is the MOST important reason to promote energy-efficient lighting equipment?
DO NOT READ. ACCEPT ONE ONLY.

E1.b Are there other reasons? DO NOT READ. ACCEPT MULTIPLES.

(Competitors are doing it)	1
(Increased revenue or margin)	2
(Customer satisfaction/retention)	3
(Efficient equipment is more durable, fewer call backs)	4
(Other (Specify__))	77
(Don't know)	88

E.2 Using a scale of 1 to 5, where 1 is 'not at all important' and 5 is 'very important': How important is the offer of energy efficient equipment in maintaining your firm's competitive position?

ENTER CODE 1 – 5; DK=888; REF = 99. _____

E.3 **[ASK IF F1 = 1, ELSE SKIP TO E.4.]** On a scale of 1 to 5 where 1 is 'Not at all Effective' and 5 is 'Very Effective', how effective do you think Efficiency Vermont has been in promoting the use of energy-efficient lighting technologies among commercial and industrial customers?

E NTER CODE 1 – 5; DK=888; REF = 99. _____

E.4 Do you have any suggestions on how Efficiency Vermont can help distributors and contractors sell more energy-efficient lighting to Vermont businesses?

ENTER VERBATIM_____

THANK YOU FOR YOUR TIME AND COOPERATION.

RLW Analytics

Guidelines for Participant and Permittee Walk Site Visits

There are actually two points of comparison that we plan to glean from our walk through data. The first is the obvious comparison of the types of electrical and mechanical systems installed. This will come from the inventory of such things as lighting, HVAC equipment, and building shell components. Secondly, a subset of the physical inventory is the “why” of an installation. For example, if electric wall heaters are installed in a building’s hallways, it is important to also determine, if possible, why that was done. The “why” answers will be the most difficult to get as the decision maker may often not be there to provide the answers. Please document who might be asked, if so.

The second variable is operation. Operational determination will come from identifying the types of controls installed and their usage in each facility. (For example, operational data may answer questions like “Are occupancy sensors more common in participant facilities?” or “do participants have deeper night setback temperatures?”).

It would be interesting to do an electric bill comparison – kWh per square foot – between the participant and permittee facilities. As possible, ask each customer if it’s possible to obtain a one-year utility history.

Our goal is to identify technology types and the motivation for installation. We are not as interested in detailed counts of every room and every piece of equipment. The process can be broken to the major building components and methodologies. Of course, all project include the always all encompassing “other” items that are specific to each building.

Shell Components

These are self-explanatory. We will know as soon as we drive up if this is your typical off-the-shelf box or a custom designed architectural project. Items that should be noted are:

- Wall and roof construction
- Insulation type and levels
- Glazing type
- Building orientation
- Interior and exterior shading
- Active or passive solar systems

Lighting

We do not envision doing a complete and detailed lighting inventory of every nook and cranny. Sample areas – typical classrooms, typical offices, etc. - will provide lighting densities for these space types. We need the estimated square footage of these spaces so “area” is necessary to our data collection.

We also have to identify the “why” questions that may be pertinent at each site. There is no way to predict these questions, but it will become evident from the site itself. For example, if we find T5 fixtures illuminating a warehouse, but T8 systems installed in offices, we need to ask: were T5’s considered for the remaining spaces? Or, if we find metal halide fixtures installed are not pulse start technology, we should ask: was pulse start technology offered as an option?

- Fixture types – key here is looking for diversity and the trickling in of new technologies. For example, if we find “bare bone” lighting systems, we can ask if they were designed for the lowest operating costs; or, say in another case where the systems include incandescent track lighting, wall washers, or other lighting that adds to the watts per square foot of general area illumination - we ask if *aesthetics* were important.
- Control types and **current** condition of controls – ex, we need to note such things as occupancy sensors that are used as wall switches, or, time clocks that are not used or improperly set.

HVAC Systems

It is *critical* to get all information on both the nameplate *and* controls.

We are looking to identify the *major* system components here. For example: the motor size of the 50 CFM toilet fan - not important. Identifying the size and type of heat pump units - important.

The HVAC System approach is the same as lighting. We want to document what are the major systems and were more efficient options considered.

Rooftop units are a common HVAC strategy. We will collect the usual size and capacity and identify the efficiency of the motor. But the data collection should include if the unit has outside air economization. Is it a dry bulb or enthalpy economizer? How is the RTU controlled – local thermostats? EMS? Is there a night setback? Is this a VAV or constant volume system? Does the system serve a core area and is it working against perimeter through the wall units?

It is impossible to list all the strategies for all the equipment types we will encounter in the field. What we are looking for, again, are equipment types and motivating mindsets.

The RTU described previously can serve an office area. We will have all the data and subtle nuances for that and similar systems. We are also looking for diversity or the lack of it, such as:

- Electric unit heaters and single setting thermostats are installed in the bathrooms
- The 50 CFM toilet exhaust is not on the light switch and runs continuously

- Gas fired unit heaters with limited local controls heat the warehouse

We are looking for efficient technologies, but we are also looking for that financial line that demarcates the “efficient” from the “business as usual.”

Everything Else

We will undoubtedly uncover a wide range of equipment and systems in the field. A facility may have a large data center cooled with a dedicated DX cooling system, for example, or an air compressor feeding pneumatic process equipment, or an employee cafeteria with all electric appliances. We recognize that each piece of such equipment is there to meet a specific need. Each unit will have specific reasons behind why it was installed. The “what,” “how much,” and “why” questions still apply here.

The nameplate data will be taken and the salient motivating criteria will be noted, such as these examples:

- “the dedicated cooling unit operates continuously and a free cooling glycol option was not considered”
- “The air compressor provides 110 PSI air to a common header, is linked with an electric dryer, and outside air is ducted into the enclosure.”
- “The kitchen equipment was installed per the specifications of the sub-contractor running the kitchen and was not part of the initial building design”

The data acquisition form was created to correspond to EVT end use codes and measures installed in the facilities.

The purpose of the form is to capture the motivation for what was done rather than raw quantities.

The goal is to report what options, alternatives, and decisions were presented to and made by facility owners.

This permits RLW to focus on the "why" of each measure rather than the "how much".

This will also reveal the "who" in each measure - the "who" that is responsible for the final decisions and project scope.

The "how much" will be addressed, but in less detail than the previous report. Lighting types, cooling equipment, and efficient devices will be reported in "estimated percentage" of that end use. For example, T8's are 88% of lighting in a facility. Or, DX cooling is serves 5.0% of a building with a centrifugal chiller accounting for 95% of the load.

In that light, reporting that T5 lighting saturation increased 13.2% of total lighting by area in office buildings provides less information than reporting that 95% of facility owners do not know what T5's are and 85% of them were not presented with T5 lighting as an option.

Each end use is presented as a separate page in the data form. Multiple end use pages can be inserted as needed for complex facilities when that level of detail is required.

Process measures are not included. These include snowmaking, compressed air, and process designations. These measures vary in scope and complexity. Site specific data will be collected onsite as needed and consolidated later.

Data Form

FACILITY NAME:

FACILITY TYPE:

DESCRIPTION:

SIZE:

OPERATING SCHEDULE:

WINTER TEMPS:

OCC

UNOCC

SUMMER TEMPS:

OCC

UNOCC

HUMIDIFICATION:

SETPOINT

% AREA

DEHUMIDIFICATION:

SETPOINT

% AREA

COMMENTS:

SHELL	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Ceiling Insulation							
Comments							
Wall Insulation							
Comments							
Single Pane Glazing							
Comments							
Thermal Pane Glazing							
Comments							
KalWall							
Comments							
Weathersealing							
Comments							
Pipe Insulation							
Comments							
Duct Insulation							
Comments							
Other							
Comments							

EFFICIENT APPLIANCES	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
Comments							
Refrigerators							
Comments							
Washers Top Load							
Washers Front Load							
Comments							
Dryers							
Comments							
Dishwashers							
Comments							
Other							
Comments							

LIGHTING - INDOOR	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
T12's							
T8/T5 Options							
Comments							
T8's							
T5 Option							
Comments							
T5's							
Comments							
Incandescents							
Comments							
Hard Wired CF's							
Screw In CF's							
Comments							
Metal Halide							
Pulse Start MH							
Comments							
High Pressure Sodium							
Comments							
LED Exit Signs							
CF Exit Signs							
Incandescent Exit							
Comments							
Other							
Comments							

LIGHTING - OUTDOOR	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
T12's/T8's/T5's T8/T5 Options Comments							
Incandescents Comments							
Hard Wired CF's Screw In CF's Comments							
Metal Halide Pulse Start MH Comments							
High Pressure Sodium Comments							
Other Comments							

LIGHTING - CONTROLS	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Occupancy Sensors Comments							
Dimming Ballasts Comments							
Photocells Comments							
Time Clocks Comments							
Manual Comments							
EMS Comments							
Other Comments							

COOLING	Air or Water Cooled	INSTALLED			Percent Of Total	CONSIDERATIONS		
		Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS								
Centrifugal Chiller								
Comments								
Screw Chiller								
Comments								
Reciprocating Units								
Comments								
Absorption Units								
Comments								
Heat Pumps								
Comments								
Window/Wall								
Comments								
Other								
Comments								

HEATING	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Steam Boilers							
Comments							
Hydronic Boilers							
Comments							
Furnaces							
Comments							
Direct Fired RTU's							
Comments							
Heat Pumps							
Comments							
Radiant/Infrared							
Comments							
Direct Fired Unitary							
Comments							
Other							
Comments							

	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
Controls Continued							
Digital Controllers							
Temperatures							
ON/OFF Schedule							
Ventilation							
Economization							
DAT							
HHW							
Humid							
Dehumid							
Other							
Comments							
Setback Thermostats							
Comments							
Other							
Comments							

COMMERCIAL REFRIGERATION	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Efficient Compressors							
Comments							
Economization							
Comments							
Controls							
Comments							
Plate Coolers							
Comments							
Fans							
Comments							
Other							
Comments							

OTHER	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes or No	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Fuel Switch Heating							
Comments							
Fuel Switch DHW							
Comments							
Fuel Switch Process							
Comments							
Fuel Switch Appliance							
Comments							
PC Sleep							
Comments							
Efficient Transformers							
Comments							
Other							
Comments							

FACILITY NAME:	Comprehensive Industries		
FACILITY TYPE:	Manufacturing plant with corporate offices		
DESCRIPTION:	Facility includes some residences for employees, shipping/receiving, offices, and production lines.		
SIZE:	500,000 square feet		
OPERATING SCHEDULE:	M-F 6 AM to 10 PM, Sat 8 AM to 5 PM, limited SUN operation		
WINTER TEMPS:	OCC	70	UNOCC 65
SUMMER TEMPS:	OCC	70	UNOCC OFF
HUMIDIFICATION:	SETPOINT	50%	% AREA 10%
DEHUMIDIFICATION:	SETPOINT	N/A	% AREA
COMMENTS:	Only 65% of the facility is cooled.		

		INSTALLED		Percent Of Total	CONSIDERATIONS		
SHELL	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Ceiling Insulation	Y	UNK	R-24		N	Y	
Comments	INCLUDED IN CONSTRUCTION SPECS						
Wall Insulation	Y	UNK	R-11		N	Y	
Comments	INCLUDED IN CONSTRUCTION SPECS						
Single Pane Glazing	Y	UNK			N	Y	
Comments	INCLUDED IN CONSTRUCTION SPECS - LIMITED TO UNHEATED VESTIBULES						
Thermal Pane Glazing	Y				N	Y	
Comments	INCLUDED IN CONSTRUCTION SPECS - DOUBLE PANE						
KalWall	Y	R-1.9	R-10		Y	Y	
Comments	CELESTORY - PROVIDES DAYLIGHTING FOR OPEN OFFICE - WAS D PANE						
Weathersealing	Y				N	Y	
Comments	INCLUDED IN CONSTRUCTION SPECS						
Pipe Insulation	N				N	Y	
Comments	MINIMAL UNHEATED SPACES - NOT APPLICABLE						
Duct Insulation	Y				N	Y	
Comments	INCLUDED IN CONSTRUCTION SPECS						
Other	Y	R=11	R-6		Y	Y	
Comments	GLASS BLOCK - CONFERENCE ROOM - INSTALLED FOR AESTHETICS - REPLACED WALL						

EFFICIENT APPLIANCES	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
Comments							
Refrigerators	Y			100%	N	Y	
Comments							
Washers Top Load	Y			75%	Y	Y	
Washers Front Load	Y			25%	Y	Y	
Comments		NOT ALL FRONT LOADERS - DON'T WANT PEOPLE BENDING WITH WET WASH					
Dryers		N/A					
Comments		GAS DRYERS					
Dishwashers		N					
Comments		NO DISHWASHERS					
Other							
Comments							

LIGHTING - INDOOR	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
T12's		N					
T8/T5 Options							
Comments							
T8's	Y			70%	N	Y	
T5 Option		NOT PRESENTED AS OPTION					
Comments		OWNER DID NOT KNOW T5's AVAILABLE FOR OFFICE FIXTURES					
T5's	Y			15%	Y	N	
Comments		T5's LIMITED TO SHIPPING WAREHOUSE HIGH BAY FIXTURES - CONSIDERED 400W MH					
Incandescents	Y			1%			
Comments		DIMMING FIXTURES IN CONFERENCE ROOMS - DIMMABLE CF'S PRESENTED HIGH COST					
Hard Wired CF's	Y			2%	N	Y	
Screw In CF's	N				N	Y	
Comments		HALLWAYS AND DISPLAY					
Metal Halide	Y			12%	N	Y	
Pulse Start MH	N	NOT PRESENTED AS ALTERNATIVE TO RESTRIKE FIXTURES					
Comments		MAIN PRODUCTION FLOOR - 10% HAVE QUARTZ RESTRIKES					
High Pressure Sodium		N					
Comments							
LED Exit Signs	Y			100%	N	Y	
CF Exit Signs	N				N	Y	
Incandescent Exit	N				N	Y	
Comments							
Other							
Comments							

LIGHTING - OUTDOOR	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
T12's/T8's/T5's	N						
T8/T5 Options	N						
Comments							
Incandescents	Y			10% N		Y	
Comments	JELLY JAR FIXTURES BY ENTRIES - LOW ANNUAL USAGE						
Hard Wired CF's	N						
Screw In CF's	N						
Comments	NOT OFFERED AS ALTERNATIVE TO INCANDESCENTS						
Metal Halide	N						
Pulse Start MH	N						
Comments							
High Pressure Sodium	Y			90% N		Y	
Comments	ALL PARKING LOT POLE LIGHTS, WALKWAY BULLARDS, AND WALL PACKS						
Other							
Comments							

LIGHTING - CONTROLS	INSTALLED			Percent Of Fixtures	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Occupancy Sensors	Y			10%	Y	Y	
Comments INSTALLED IN INDIVIDUAL OFFICES - HALF REMOVED - OCCUPANT UNHAPPY							
Dimming Ballasts	N				N		
Comments							
Photocells	Y				N		
Comments EXTERIOR ONLY (WITH T/C) NOT OFFERED FOR INTERIOR FIXTURES							
Time Clocks	Y						
Comments EXTERIOR ONLY (WITH P CELL)							
Manual	Y			90%	Y	Y	
Comments STANDARD WALL SWITCHES EXCEPT INDIVIDUAL OFFICES							
EMS	N				N		
Comments NOT INCLUDED IN EMS							
Other							
Comments							

		INSTALLED				CONSIDERATIONS		
	Air or Water Cooled	Yes	Base Value	Installed Value	Percent Of Total	Considered Options	Accepted as Presented	Don't Know
COOLING								
COMMENTS								
Centrifugal Chiller		Y		0.65 Kw/TON	95%	N	Y	
Comments		COOLS 60% OF THE FACILITY						
Screw Chiller		N/A						
Comments								
Reciprocating Units		Y				N		
Comments		LIEBERT UNIT FOR DATA CENTER - 8760 COOLING LOAD						
Absorption Units		N/A						
Comments								
Heat Pumps		N/A						
Comments								
Window/Wall		N/A						
Comments								
Other		N/A						
Comments								

		INSTALLED			CONSIDERATIONS			
HEATING		Yes	Base Value	Installed Value	Percent Of Total	Considered Options	Accepted as Presented	Don't Know
COMMENTS								
Steam Boilers		N						
	Comments							
Hydronic Boilers		Y			75%	N	Y	
	Comments	GAS/OIL DUAL FUEL						
Furnaces		N						
	Comments							
Direct Fired RTU's					10%	Y	Y	
	Comments	RTU'S FOR OFFICE AREA. PIPED TO CHILLER RATHER THAN DX COMPRESSORS						
Heat Pumps		N						
	Comments							
Radiant/Infrared		Y			12%	Y	N	
	Comments	ORIGINALLY UNIT HEATERS - RADIANT INSTALLED IN SHIPPING TO REDUCE HEATING						
Direct Fired Unitary		Y			3%	Y	Y	
	Comments	GAS FIRED UNIT HEATERS IN STOCK ROOM - AVOIDED LONG PIPE RUN FROM BOILERS						
Other								
	Comments							

VSD's PEM's	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS	OTHER = CHILLER VSD		500 TON				
Variable Speed Drives							
Chilled water pumps	Y			25%	N	Y	
Condenser water pumps	N				N	Y	
Heating HW Pumps	Y			5%	N	Y	
Supply Fans	Y			40%	N	Y	
Return Fans	Y			20%	N	Y	
Exhaust Fans	N				N	Y	
Cooling Tower Fans	Y			10%	N	Y	
Other	Y				Y	Y	
Comments	EXHAUST FANS TOO SMALL FOR VSD'S						
Premium Eff Motors							
Installed with VSD	Y			80%	N	Y	
Flow rebalanced	N/A				N	Y	
Installed no VSD	Y			20%	N	Y	
Flow rebalanced	N/A				N	Y	
Comments	PEM'S SPECIFIED FOR ALL MOTORS GREATER THAN 1 HP						
Other							
Comments							

Controls	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS %'s ARE OF KW LOAD - EMS MONITORS CHILLER PLANT BUT CHILLER UNDER LOCAL CONTROLS							
EMS							
Temperatures	Y			45%	Y	N	
ON/OFF Schedule	Y			45%	Y	N	
Ventilation	Y			45%	Y	N	
Economization	Y			45%	Y	N	
DAT	Y			45%	Y	N	
HHW	Y			45%	Y	N	
Humid	Y			45%	Y	N	
Dehumid	N/A						
Other	N/A						
Comments	CONSIDERED FULL EMS CONTROL - DIGITAL CONTROLLERS USED ON CHILLER PLANT						
Time Clocks/Local Controls							
Temperatures	N/A						
ON/OFF Schedule	N/A						
Ventilation	N/A						
Economization	N/A						
DAT	N/A						
HHW	N/A						
Humid	N/A						
Dehumid	N/A						
Other	N/A						
Comments							

Controls Continued	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS %s ARE OF KW LOAD - DIGITAL CONTROLLERS INSTALLED IN LIEU OF EMS TO REDUCE FIRST COST							
Digital Controllers							
Temperatures							
ON/OFF Schedule	Y			55% Y		N	
Ventilation							
Economization							
DAT							
HHW							
Humid							
Dehumid							
Other							
Comments	CARRIER DIGITAL PACKAGE CONTROLS CHILLER, CHWPS, CWPS, TOWER FANS						
Setback Thermostats							
Comments							
Other							
Comments							

COMMERCIAL REFRIGERATION	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Efficient Compressors	N/A						
Comments							
Economization	N/A						
Comments							
Controls	N/A						
Comments							
Plate Coolers	N/A						
Comments							
Fans	N/A						
Comments							
Other	N/A						
Comments							

OTHER	INSTALLED			Percent Of Total	CONSIDERATIONS		
	Yes	Base Value	Installed Value		Considered Options	Accepted as Presented	Don't Know
COMMENTS							
Fuel Switch Heating	N/A			N/A			
Comments							
Fuel Switch DHW	N/A			N/A			
Comments							
Fuel Switch Process	N/A			N/A			
Comments							
Fuel Switch Appliance	N/A			N/A			
Comments							
PC Sleep	N			N Y			
Comments	NOT OFFERED AS AN OPTION						
Efficient Transformers	N			N Y			
Comments	NOT OFFERED AS AN OPTION						
Other							
Comments							